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MEDIASTINAL EMPHYSEMA

THE FRANK BILLINGS LECTURE

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When I was a young physician Dr. Frank Billings was one of the most distinguished figures in American medicine. I looked on him with admiration and awe. Therefore, to be asked to give this lecture, founded to perpetuate his memory, is not only an honor but also a source of great pleasure. My only regret is that I have not a more worthy tribute for the occasion.

The subject of mediastinal emphysema is not a new one. Occasional cases with dramatic symptoms were reported a century or longer ago. However, during the past twenty years, especially during the past decade, experimental investigation and clinical observation have extended our knowledge and put it on a firm base. The conditions causing mediastinal emphysema are now well known; the mechanism of its production and its relation to associated manifestations, chiefly interstitial emphysema of the lungs and pneumothorax, have been clearly exposed; the symptoms that result are better understood and therefore its recognition has become easy. It is true that in most instances mediastinal emphysema is a benign condition but, even so, it is important that the physician should not confuse it with serious diseases to which it may bear a close resemblance. However, not infrequently grave and threatening symptoms arise and then a correct appraisal of the situation and prompt action may be life saving. Therefore it may serve a useful purpose briefly to review the present state of our knowledge concerning this interesting and important condition.

PATHWAYS FOLLOWED BY AIR IN REACHING THE MEDIASTINUM

Air may reach the mediastinum by four routes: (1) along the fascial planes of the neck, (2) through a perforation of the trachea, bronchus or esophagus into the mediastinum, (3) from the retroperitoneal space and (4) from the interstitial tissues of the lung. Other channels have been suggested as possible routes, but that these routes are ever followed has not been demonstrated conclusively. These hypothetical routes are (*a*) dissection of air between the parietal pleura and the chest wall, (*b*) dissection of air beneath the visceral pleura and (*c*) the passage of air from the pleural cavity to the mediastinum.

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That air may enter the mediastinum along the fascial planes of the neck seems to be satisfactorily established. During deep dissection of the tissues of the neck,[1] especially during thyroidectomy and tracheotomy, surgeons have described hearing air being sucked into the mediastinum. Since under these circumstances pneumothorax also often occurs, it has been suggested that the pneumothorax may precede the mediastinal emphysema, the pneumothorax being due to injury of the pleura where it protrudes into the neck above the clavicle. That this sequence of events actually occurs has never convincingly been demonstrated. At the postmortem examination of patients who have died of mediastinal emphysema following, for instance, thyroidectomy, no evidence of injury to the pleura has been discovered; whereas, in the frequently repeated experiments of blowing air into the mediastinum and of producing mediastinal emphysema by forceful inflation of the lungs, pneumothorax regularly occurs and at autopsy a minute rent may be found in the mediastinal pleura, or the surface of the mediastinal pleura may be studded with small saccular protrusions, suggesting that air had entered the pleural cavity through a rupture of one of these vesicles, even though the actual point of rupture cannot be located. It is now well established that mediastinal emphysema is usually the result of rupture of pulmonary alveoli with the production of interstitial emphysema of the lung. Since operations on the neck are always accompanied by conditions (anesthesia, tracheal or bronchial obstruction, coughing) which are the familiar precursors of interstitial emphysema of the lungs, it seems altogether likely that mediastinal emphysema following such operations is often, probably even usually, a sequence to rupture of alveoli rather than to the direct aspiration of air into the mediastinum. In any particular case it might be impossible to decide which of the two routes air had followed. As proving that in certain cases air had been directly aspirated, the fact is cited that at autopsy no evidence of interstitial emphysema of the lungs had been found. This evidence is not altogether conclusive, for the preexistence of interstitial emphysema may be overlooked unless the autopsy is performed with especial care.

Air entering the deep fascial planes of the neck at a higher point may dissect downward and enter the

1. Buford, C. G.: The Entrance of Air into the Mediastinum During Operations on the Base of the Neck, Surg., Gynec. & Obst. **26:** 540, 1918. Keis, J.: Studies on the Origin of Mediastinal Emphysema and Pneumothorax at Operation on the Thyroid Gland, München. med. Wchnschr. **81:** 669, 1934. Michels, M. W.: Pneumothorax and Mediastinal Emphysema Complicating Tracheotomy, Arch. Otolaryng. **29:** 842 (May) 1939. Ackerman, L. V., and Bricker, E. M.: Mediastinal Emphysema and Bilateral Pneumothorax Following Radical Dissection of the Neck, Arch. Surg. **43:** 445 (Sept.) 1941. Barrie, H. Z.: Interstitial Emphysema and Pneumothorax After Operation on the Neck, Lancet **1:** 996, 1940. Neffson, A. H.: Tension Pneumothorax and Mediastinal Emphysema After Tracheotomy, Arch. Otolaryng. **37:** 23 (Jan.) 1943. Work, W. P.: Mediastinal Emphysema and Bilateral Simultaneous Pneumothorax Complicating Tracheotomy in an Adult, ibid. **37:** 526 (April) 1943.

mediastinum. After tonsillectomy subcutaneous emphysema in the neck may occur and occasionally mediastinal emphysema follows. I have observed this train of events after puncture and irrigation of the maxillary antrum. It may follow deep wounds of the neck and wounds of the pharynx and buccal cavity.

It is clear that rupture of the lower portion of the trachea or of one of the main bronchi will allow air freely to enter the mediastinal tissues. Such an accident occurs only rarely from disease or from trauma. It has happened after lobectomy and pneumonectomy. In the early period of operating on the lungs, before technical procedures had been perfected, it was difficult to close the severed bronchus securely. Occasionally air leaked into the mediastinum, always with disturbing, sometimes with serious, results. Better methods of closing the bronchus have almost eliminated the danger of this accident. No doubt at times air may enter the mediastinum through a perforation of the esophagus. However, when this accident occurs there is always infection, and the serious symptoms of infection obscure the lesser symptoms that may arise from a small amount of air entering the mediastinum.

Circumstances That Cause Interstitial Emphysema of the Lungs

1. Trauma.
   a. Injury to chest with or without fracture of the ribs.
   b. Operations on the chest, particularly the induction of pneumothorax.
2. Increase of intrapulmonary pressure.
   a. Straining with the glottis closed.
      Heavy lifting.
      Straining at stool.
      Childbirth.
      Attempts to resuscitate the newborn.
   b. Occlusion, partial or complete, of the trachea or bronchi; usually accompanied by cough.
      Anesthesia, especially closed method or inflation method.
      Asthma.
      Bronchitis.
      Foreign bodies.
      Whooping cough.
      Pneumonia.
3. Spontaneous rupture of alveoli.

When from any cause air accumulates in the retroperitoneal tissues, it may travel along the aorta or the esophagus and enter the mediastinum. Perforation of the stomach or the intestine may be followed by mediastinal emphysema.[2] The injection of air into the peritoneal cavity as a treatment for peritoneal tuberculosis [3] and the injection of air into the perirenal tissues to facilitate roentgenography of the kidneys has often produced mediastinal emphysema.

The entrance of air into the mediastinum through the fascial planes of the neck, directly from a rupture of the trachea, a main bronchus or the esophagus, or from the retroperitoneal tissues through the diaphragm, occurs only rarely and is of little practical importance compared with the usual path of entrance through the interstitial tissues of the lung. When alveoli lying on interstitial bands of connective tissue rupture, air enters the tissues about and travels along the course of the arteries to the mediastinum. It is possible that air may proceed in the opposite direction and lodge beneath the visceral pleura, but pressure gradients take most of the air, if not all of it, toward the hilus of the lung.

2. McCorkle, H., and Stevenson, J.: Subcutaneous Emphysema Associated with Perforated Peptic Ulcer, Surgery **2**: 930, 1937.

3. Banyai, A. L., and Jurgens, G. H.: Mediastinal Emphysema as a Complication of Artificial Pneumoperitoneum, J. Thoracic Surg. **8**: 329, 1938.

There are many circumstances that cause interstitial emphysema of the lungs. I cannot name them all but will group them in the accompanying tabulation.

Penetrating wounds of the chest that pierce the lung may rupture alveoli and produce interstitial emphysema and mediastinal emphysema. Injury to the chest with fracture of ribs is the common cause. However, it has been observed again and again that crushing injuries to the chest without an open wound or fracture of the ribs may be followed by mediastinal emphysema. In performing artificial pneumothorax the needle often enters the lung and, if air is allowed to flow in, the interstitial tissues may become infiltrated and air reach the mediastinum.[4] Slight degrees of mediastinal emphysema occur frequently but usually are overlooked.

Mediastinal emphysema may follow any form of exertion but particularly straining with the glottis closed. Cases are recorded that have come on after heavy lifting, after straining at stool and many during childbirth. Faust [5] in 1940 collected from medical literature 130 reported cases arising during labor, most of them in primiparas.

Occlusion of the trachea or bronchi is a fertile cause of rupture of pulmonary alveoli. If the bronchial occlusion is complete there is collapse of the portion of the lung supplied by the bronchus with overdistention of the surrounding part of the lung; if the bronchial occlusion is incomplete there is distention of the portion of the lung supplied by the bronchus; if there is partial obstruction to the trachea both lungs become greatly distended. The overdistended alveoli may rupture. No doubt bronchial obstruction plays an important role in the production of mediastinal emphysema when it is associated with the administration of anesthetics,[6] although the increased pressure in the bronchial tree induced by certain methods of anesthesia may play an accessory role or even alone be the cause. It has been noted that mediastinal emphysema occurs particularly often when the closed method and the inflation method of inducing anesthesia are used. No doubt bronchial obstruction also plays a part in producing alveolar distention in inflammatory diseases of the lungs, especially when accompanied by severe paroxysms of coughing, for the commonest cause of bronchial obstruction is plugs of tenacious inflammatory material. This association occurs particularly often in pertussis, asthma [7] and pneumonia,[8] conditions frequently causing mediastinal emphysema. Foreign bodies in the bronchi act in the same way.

Of particular interest is the occurrence of mediastinal emphysema when there is no evidence whatever of the presence of any condition leading to increased intra-alveolar pressure.[9] It may come on in a perfectly healthy person when he is standing quietly or sitting in a chair. It has the appearance as though normal alveoli may rupture under ordinary conditions of intrabronchial pressure. If we assume that there must be some alteration of the alveolar wall, it is impossible to ascertain

4. Ehrenburg, G. E.: Emphysema of the Mediastinum as a Complication of Artificial Pneumothorax, Am. Rev. Tuberc. **26**: 738, 1932. Wustmann.[14]

5. Faust, R. C.: Subcutaneous Emphysema During Labor, Northwest Med. **39**: 24, 1940.

6. Marcotte, R. J.; Phillips, F. J.; Adams, W. E., and Livingstone, H.: Differential Intrabronchial Pressure and Mediastinal Emphysema, Surgery **9**: 346, 1939.

7. Rosenberg, L., and Rosenberg, J.: Subcutaneous Emphysema Complicating Bronchial Asthma, Am. J. M. Sc. **195**: 682, 1938. Skinner, H. H.: Asthma Complicated by Subcutaneous Emphysema in Children, J. Pediat. **18**: 117, 1941.

8. Berkley, H. K., and Coffen, T. H.: Generalized Interstitial Emphysema and Spontaneous Pneumothorax as Complications of Bronchopneumonia, J. A. M. A. **72**: 535 (Feb. 22) 1919.

9. Hamman, L.: Spontaneous Mediastinal Emphysema, Bull. Johns Hopkins Hosp. **64**: 1, 1939.

what it may be. The fact that spontaneous mediastinal emphysema tends to recur suggests that there may be an inherited defect of tissue quality. Macklin,[10] who has particularly emphasized the importance of bronchial obstruction in causing mediastinal emphysema, thinks that this mechanism may come into play even in cases seeming to arise spontaneously. It is possible that alveolar walls may be stretched and thinned by overdistention and yet rupture hours after the overdistention has occurred.

ESCAPE OF AIR FROM MEDIASTINUM

When air reaches the mediastinum and is confined there it will gradually be absorbed. Why in some instances it is confined within the mediastinum whereas in other instances it discovers an exit is not fully understood. One factor of importance is the amount of air that enters the mediastinum which determines the pressure it exerts. When sufficient pressure develops, air always escapes from the mediastinum. This occurs invariably in experiments on animals when the lungs are forcibly inflated. Nevertheless the pressure exerted by the air seems not to be the only factor concerned in its escape, since sometimes it escapes when there is little increase of pressure, whereas at other times it is retained within the mediastinum when there is evidence of great increase of pressure. Apparently the location of the air within the mediastinum is an importane factor, air escaping easily from certain locations but only with difficulty from others. It seems always to travel with greatest ease in the connective tissue surrounding blood vessels.

When air escapes from the mediastinum it may follow one of three paths: (1) into the subcutaneous and deep tissues of the neck, (2) through the diaphragm, about the aorta and the esophagus, to the retroperitoneal tissues and (3) into the pleural cavities.

The escape of air into the neck is readily detected and usually is convincing evidence of the presence of mediastinal emphysema. However, it does not invariably indicate that air has come from the mediastinum, for subcutaneous emphysema in the neck may occur when there is a wound of the chest communicating with the lung or when air enters the fascial planes from the buccal or nasal cavities. These possibilities must be excluded before we may consider it diagnostic of mediastinal emphysema. Air having escaped through the jugulum into the subcutaneous tissues of the neck, it may spread widely over the body, to the head, over the chest and abdomen, to the legs. Rarely the subcutaneous tissues are infiltrated with air from the top of the head to the soles of the feet. Occasionally air passes up the neck along the deep fascial planes and produces great swelling of the submucous tissues of the mouth and throat.

When air in the mediastinum pierces the diaphragm and spreads through the retroperitoneal tissues, its presence in these tissues may be difficult to recognize. Usually patients complain of pain in the abdomen, sometimes of pain on swallowing. The accident happens not infrequently during the induction of pneumothorax and at subsequent refills.

The association between mediastinal emphysema and pneumothorax is an intimate one, the two very often occurring together. We may sum up the present state of our knowledge concerning the relationship by saying that air from the mediastinum frequently enters the pleural cavity but that air from the pleural cavity never enters the mediastinum. The truth of this statement is supported by experiment and by clinical observation. It has an important bearing on our interpretation of certain clinical facts and makes clear the mechanism of what is commonly called tension pneumothorax.

Following injury to the chest there is often great shortness of breath and cyanosis. On examination pneumothorax is discovered and when the pressure in the pleural cavity is measured it is found to be very high. The usual assumption is that the lung has been ruptured and that a valvelike opening has formed which permits air to enter the pleural cavity but prevents it from escaping. This mechanism perhaps does occur, but certainly it is not the invariable one or even the usual one. In many such instances there is also subcutaneous emphysema in the neck demonstrating the presence of mediastinal emphysema. Therefore it is possible that the injury may not have caused rupture of the pleura but rupture of pulmonary alveoli with the formation of interstitial emphysema of the lung, then mediastinal emphysema, then pneumothorax through rupture of the mediastinal pleura. Sometimes pneumothorax occurs on the side opposite to the one that has been injured, so-called contralateral pneumothorax. Contralateral pneumothorax is very simply explained as secondary to mediastinal emphysema, whereas it is difficult to explain it by assuming the existence of any other pathway. Whenever subcutaneous emphysema in the neck and pneumothorax exist together, it is altogether probable that both are secondary to mediastinal emphysema.

The evidence of experiment demonstrates clearly that air may pass from the mediastinum to the pleura. When air is forcibly blown into the lung, pneumothorax always occurs if sufficient force is used. In animals when death comes suddenly during such an experiment, autopsy reveals bilateral pneumothorax with collapse of both lungs. The lungs then taken from the body may be inflated under water and no evidence found of a rupture or perforation of the visceral pleura.

THE EFFECTS OF AIR IN THE MEDIASTINUM

A small amount of air in the mediastinum may produce only trivial symptoms or none at all. Large amounts may cause very grave disturbance and in some instances lead to death. It has been commented on that when there is extensive subcutaneous emphysema the symptoms of increased mediastinal pressure are apt to be slight, whereas when there are grave symptoms of mediastinal pressure there is usually little subcutaneous emphysema. The entrance of air from the mediastinum into the pleural cavity does not offer such a safe escape for increased mediastinal pressure. The capacity of the pleural cavity will accommodate only a small amount of air before increased tension in the cavity adds to the symptoms of mediastinal pressure.

The effects of increased mediastinal pressure are similar to those of increased intrapericardial pressure. As the pressure rises the veins collapse, the inflow of blood into the heart is hindered, and if the pressure rises sufficiently high the circulation of the blood comes to a standstill. As the circulation becomes impeded, dyspnea and cyanosis come on and a little later pulmonary edema develops to aggravate these symptoms. If the pressure rises further the symptoms become more and more severe and finally end in death. Macklin has

10. Macklin, Charles C., and Macklin, Madge T.: Pulmonic Interstitial Emphysema and Its Sequelae: An Anatomical Interpretation, in Essays in Biology in Honor of Herbert M. Evans, Berkeley, Calif., University of California Press, 1943; Critical Review of the Literature with Extensive References, Medicine, to be published.

suggested that when mediastinal emphysema follows rupture of pulmonary alveoli the interstitial emphysema may press on the blood vessels and by interfering with the circulation in the lung promote dyspnea and cyanosis. Clinical observation demonstrates clearly that as the circulation fails pulmonary edema comes on, further to increase the respiratory embarrassment.

There are many experimental observations that demonstrate the course of these events. For instance, Jehn and Nissen [11] injected air directly into the mediastinum of rabbits and dogs. As long as the pressure in the mediastinum remained at ± 0 no recognizable symptoms developed, although breathing at times became more rapid and the blood pressure a little higher. As more air was introduced the blood pressure fell and the respiratory variations disappeared. Then came a period of apnea, followed by intense dyspnea and cyanosis; the veins in the neck stood out prominently, the eyes protruded and air appeared in the subcutaneous tissues about the jugulum. If the injection of air was stopped at this point some of the animals recovered, but in most there was an abrupt fall of blood pressure soon followed by death.

At the postmortem examination there was found extensive subcutaneous emphysema over the front of the chest, the air bubbles arranged in rows, resembling strings of pearls. When the mediastinum was opened the heart and large blood vessels were surrounded by air bubbles. The auricles, the upper and lower vena cava and the extrapulmonary portion of the large pulmonary veins were collapsed. Air was found along the esophagus and aorta, penetrating the diaphragm and collecting in the perirenal tissues. All of the organs showed a high degree of passive congestion.

At operation on man conditions have been found resembling those seen in animals with increased mediastinal pressure. For instance, Sauerbruch reports operating on a man after an automobile accident. "The collapsed lung was found lying against the mediastinum, which was blown up like a cushion. The vena cava was as large as a child's arm, the azygos vein as large as a man's thumb. Upon incision of the mediastinal tissue the air escaped and the mediastinum assumed its normal proportions."

THE CLINICAL MANIFESTATIONS OF MEDIASTINAL EMPHYSEMA

The symptoms of mediastinal emphysema are (1) pain, (2) subcutaneous and retroperitoneal emphysema, (3) obliteration of cardiac dulness, (4) peculiar sounds heard over the heart, (5) evidence of increased mediastinal pressure, dyspnea, cyanosis, engorged veins, circulatory failure, (6) pneumothorax and (7) roentgenographic evidence of air in the mediastinum.

When only a small amount of air gets into the mediastinal tissues no symptoms may be produced. The appearance of air in the subcutaneous tissues of the neck may be the first indication that mediastinal emphysema has occurred. No doubt slight degrees of mediastinal emphysema often are overlooked. Pain, sometimes mild, sometimes severe, may be the only symptom. Evidence of increased mediastinal pressure, dyspnea, cyanosis and embarrassment of the circulation occurs relatively seldom. I shall speak of each symptom separately, then group them together as they naturally occur to produce the typical clinical pictures of mediastinal emphysema.

11. Jehn, W., and Nissen, R.: Pathology and Symptoms of Mediastinal Emphysema, Deutsche Ztschr. f. Chir. **206**: 221, 1927.

The distention of mediastinal tissues with air nearly always causes pain. This is particularly conspicuous when mediastinal emphysema occurs in otherwise healthy persons, as it does, for instance, in spontaneous interstitial emphysema of the lungs. Indeed, there is clinical evidence that persuades me to believe that dissection by air of the interstitial tissues of the lungs may cause pain even before air reaches the mediastinum. Often patients complain of pain in the side for hours before the more severe pain and oppression of mediastinal emphysema come on. The pain is usually situated beneath the sternum and radiates over the chest, to the shoulders and sometimes down the arms, in which case it is quite like the pain of angina pectoris. In addition to sharp pain there is usually a feeling of oppression or constriction under the sternum, often with a little shortness of breath. Sometimes patients complain of pain on swallowing or on turning the head. When mediastinal emphysema follows operation or trauma to the chest, the pain caused by distention of the mediastinal tissues may not be clearly defined, since the patient's sensorium may be dulled or else the pain of mediastinal emphysema may be mingled with the pain of the operation or the trauma.

It seems to me that distention of the mediastinal tissues is a satisfactory explanation for the pain. The fact that the lungs and mediastinal tissues are not directly supplied with filaments from the spinal nerves is no valid objection to this view. In almost every part of the body distention and dissection of tissues cause severe pain even in locations not supplied with branches of the spinal nerves. The interesting suggestion has been made that the pain may be due, at least in part, to interference with the coronary circulation due to pressure on the heart by the distended mediastinal tissues. Whether or not this mechanism is really concerned I cannot say, but I think it unnecessary to invoke the mechanism to explain the pain since it is satisfactorily explained by ascribing its cause to the distention and dissection of mediastinal tissues.

If subcutaneous emphysema appears in the neck under circumstances in which there is no other cause for it, then we are assured that mediastinal emphysema is present. It is conclusive evidence of the existence of mediastinal emphysema and sometimes the only evidence. Why subcutaneous emphysema should occur in 1 case and not in another when in other respects the 2 cases are alike is not clearly understood. It seems that this difference must depend on the fascial planes along which the air chances to travel, some planes connecting freely with the subcutaneous fascia, other planes not connecting freely, and still other planes having no connection with them. It may be that when air has free access to the subcutaneous tissues increased pressure in the mediastinum is avoided, whereas when air is trapped in the mediastinum, symptoms of increased pressure are apt to arise.

If the mediastinal tissues that cover the heart become infiltrated with air, characteristic symptoms occur which are of great importance for diagnosis. The symptoms are two: obliteration of cardiac dulness and peculiar sounds heard over the heart. When only a small amount of air reaches the mediastinum cardiac dulness may not be obliterated and I have no doubt that at times the distinctive auscultatory signs may be absent, although in their absence it would be difficult to decide with certainty that mediastinal emphysema is present. I have not seen an instance of mediastinal emphysema clearly established by the evidence of subcutaneous emphysema

in the neck or characteristic roentgenograms in which the peculiar sounds over the heart were not heard.

These peculiar sounds consist of crackles, bubbles or churning sounds heard with each contraction of the heart. They may be heard only during systole or during systole and diastole, but always with systolic accentuation. They may be so soft that to be heard they must be listened for attentively; they may be so loud that they can be heard at a distance. Very often the patient himself is aware of the sounds and calls attention to them. They may be loudest over the lower portion of the sternum and to the left of the sternum or near the apex of the heart. They may be heard when the patient sits up and disappear when he lies down or be plainly heard when he lies on the left side and absent in other positions. When the presence of mediastinal emphysema is suspected the heart should be listened to carefully as the patient shifts from one position to another. The sounds are so characteristic that once having been heard thereafter their significance is unmistakable. They have been misinterpreted as the signs of pericarditis or pneumopericardium. I have the firm impression that some of the cases reported as instances of pneumopericardium were, in fact, instances of mediastinal emphysema.

Now that we are becoming aware of the fact that mild forms of mediastinal emphysema occur very frequently, we learn that increased mediastinal pressure is an unusual complication. Nevertheless, when it does occur it is a grave matter and it is especially important to recognize its presence since appropriate treatment may be life saving. I have already spoken of the observations made at experiments on animals and also by surgeons at operations on human beings after crushing injuries to the chest. With increasing rise of mediastinal pressure there is increasing obstruction to blood reaching the heart. The peripheral veins become distended and there are cyanosis and dyspnea. As the pressure in the mediastinum continues to mount, cyanosis and dyspnea become extreme and finally there is collapse with the signs of complete circulatory failure. There can be no slightest difficulty in appreciating the gravity of these symptoms; the important matter is to be aware of the mechanism that is causing them and to be prepared to deal with the situation effectively.

I have already commented on the fact that there is an intimate relation between mediastinal emphysema and pneumothorax. Very often they occur together. The important clinical point in this relationship is that when pneumothorax exists the presence of mediastinal emphysema may be overlooked. Perhaps if carefully searched for it will more often be found. It is a matter worthy of note that with spontaneous mediastinal emphysema there is an associated pneumothorax in about one third of the cases. The fact that the pneumothorax is usually very small and discovered only in roentgenograms makes it all the more important as evidence that the air in the pleural cavity had come by way of the mediastinum. The only other mechanism that might be suggested as a plausible explanation for the pneumothorax is to assume that air in the interstitial tissues of the lung had found its way not only to the mediastinum but also to the subpleural tissues and there had formed a pleural bleb which had ruptured. What evidence we have indicates that the first named mechanism is the usual one and that the second occurs rarely if ever. Therefore it is reasonable to surmise that cases of spontaneous pneumothorax may follow interstitial emphysema of the lungs and mediastinal emphysema,[12] even though the presence of mediastinal emphysema might elude clinical detection.

It is in considering the mechanism of tension pneumothorax that mediastinal emphysema comes prominently to the fore. The view generally held is that tension pneumothorax is due to a rupture through the pleura with a valvelike structure that allows air to enter the pleural cavity but prevents its escape. Since at autopsy it would be difficult to demonstrate the existence of such a valvelike structure, it seems to me that it requires a degree of credulity to accept this supposition. On the other hand, I find it much easier to accept the supposition that the pneumothorax is secondary to mediastinal emphysema. Were this actually the mechanism, it would not be necessary to assume the presence of a complicated valvular structure. There are certain clinical observations which convince one that at least sometimes pneumothorax is secondary to mediastinal emphysema. For instance, when following a blow to the chest, without fracture of the ribs or an open wound, pneumothorax occurs and at the same time subcutaneous emphysema in the neck, there can be little doubt that the sequence of events has been rupture of alveoli, interstitial emphysema of the lung, mediastinal emphysema, escape of air into the subcutaneous tissues of the neck and perforation of the mediastinal pleura with the production of pneumothorax. When the pneumothorax is contralateral this conclusion is well nigh inescapable.[13]

Careful fluoroscopic and roentgenographic examination is a valuable aid to diagnosis. In many instances collections of air are plainly seen, but often the evidence for the presence of air must carefully be sought. In the lateral view streaks of air sometimes may be seen in the mediastinal tissues between the heart and the chest wall. In the anteroposterior view a sharply defined translucent band outlining the course of the pericardium, especially along the upper part of the left border, is distinctive.

DIAGNOSIS

The diagnosis of mediastinal emphysema is easily made if the observer is familiar with the clinical manifestations. Many very mild cases occur with such slight and transient symptoms that the diagnosis may only be suspected but cannot definitely be confirmed. Pain, without fever, leukocytosis or other symptoms of a constitutional reaction, with obliteration of cardiac dulness and the presence of characteristic bubbling, crackling sounds with each contraction of the heart is a distinctive clinical picture. If, in addition, subcutaneous emphysema appears in the neck, the diagnosis is firmly established. The practical importance of these mild cases is that the diagnosis be correctly made. Often they are mistakenly diagnosed as coronary occlusion and pericarditis. Many cases have now been reported in medical literature and from these we are familiar with the varying details of the clinical picture. As an illustration I will cite briefly the following additional case:

A man aged 26 consulted my associate, Dr. Charles W. Wainwright, on Jan. 6, 1944 complaining of pain in the chest. On Christmas eve, while trimming a Christmas tree, he had been seized suddenly with severe pain in the left shoulder radiating to the upper part of the sternum, which forced him

12. Hamman, L.: A Note on the Mechanism of Spontaneous Pneumothorax, Ann. Int. Med. **13**: 923, 1939.
13. Stephens, H. B.: A Consideration of Contralateral Pneumothorax as a Complication of Intrathoracic Operations, J. Thoracic Surg. **5**: 471, 1936.

to bed, where he sat propped up on pillows, bending forward. This position had given him some comfort, whereas an attempt to lie down had made the pain worse. The intensity of the pain had soon abated, but soreness and discomfort had persisted for a week and at the time of his visit he still complained of pain when he took a deep breath.

He was a sparsely nourished man of healthy appearance. The general physical examination was entirely negative. An anteroposterior roentgenogram of the chest revealed no abnormality. Studies of the blood and of the urine gave normal results. The electrocardiogram was reported "Rate 83, sinoauricular rhythm, PR interval 0.16, QRS duration 0.08, T_1, T_2 and T_3 inverted. Normal axis. The concordant inversion of the T waves might suggest pericarditis."

What gave particular interest to this incident was the patient's history. At 15 years of age while at a summer camp he had had a sudden severe attack of pain in the shoulder, which had radiated over the upper part of the chest. Some pain and soreness had persisted for a month. At 19 years of age he had had a precisely similar attack. In July 1941, as a sequel to a mild sore throat, he had again been taken suddenly with a severe pain in the left shoulder, which had radiated to the sternum and had been greatly intensified by deep breathing. The following day he had entered the hospital and at the end of an examination the physician had told him that there was a definite pericardial friction and that he undoubtedly had pericarditis.

At about 1:30 on the morning of Jan. 20, 1944 the patient was taken with epigastric discomfort and distention. Thinking that these symptoms were due to indigestion, he induced vomiting. During the violent retching that followed suddenly he was seized by severe pain in the chest, which radiated upward to the shoulders. He described the sensation by saying it felt as though the chest was being forced apart by some expanding force. After the intense pain had passed there continued pain in the shoulders made worse by deep breathing and coughing.

Later in the morning he was admitted to the Johns Hopkins Hospital. Examination at that time again was quite negative. The heart and lungs appeared to be normal. However, the following day loud coarse bubbling sounds were heard with each contraction of the heart, at first only near the apex and only in certain bodily postures, later more generally over the body of the heart. At the same time subcutaneous crepitus was felt near the left sternoclavicular joint. A roentgenogram of the chest showed the heart and great vessels outlined by a thin radiolucent band, an appearance characteristic of air in the mediastinum. The electrocardiogram was identical with the one taken nine days before except that T_1, previously inverted, had now become upright.

On the third hospital day the peculiar sounds over the heart had disappeared and the patient was comfortable.

That the attack of pain on January 20 was due to mediastinal emphysema is clearly established. Therefore it is only reasonable to assume that the four preceding attacks of pain had all been due to the same cause.

Mediastinal emphysema occurring during the course of a severe febrile illness easily may be overlooked. It is a frequent complication of the specific infections of childhood, particularly of those with pulmonary disorders, measles, diphtheria and pertussis. During the influenza epidemic of 1917 and 1918 it was often observed, and in reports of the epidemic from military camps are excellent accounts of the clinical manifestations and of the mechanism of development.[8] In patients already prostrated and deeply intoxicated the added dyspnea and cyanosis of mediastinal emphysema may be misinterpreted. Heretofore the advent of subcutaneous emphysema in the neck is the symptom that has called attention to the presence of mediastinal emphysema.

After operation or trauma to the chest, dyspnea and cyanosis should always arouse the suspicion that mediastinal emphysema may be present. As a rule these symptoms are ascribed to a pulmonary complication, to faulty anesthesia or to the shock of the operation or trauma. I have seen instances in which the diagnosis of myocardial infarction has been proposed. Mediastinal emphysema is considered only when air appears in the subcutaneous tissues of the neck. I have already emphasized the fact that tension pneumothorax is usually, perhaps always, the result of mediastinal emphysema. It is reasonable to anticipate that a growing awareness of the importance of mediastinal emphysema with careful examination and thoughtful consideration will lead to the correct diagnosis in an increasing number of cases.

TREATMENT

A small amount of air in the mediastinum is an innocent matter. The air is soon absorbed and no harm results. In this respect it is much like spontaneous pneumothorax. The only importance of its recognition is that the diagnosis of some serious disorder is avoided. On the other hand, when the pressure in the mediastinum rises the condition becomes threatening and grave consequences may follow. Under these circumstances it becomes imperative to furnish an exit for the trapped air. This problem has been approached in a number of ways.

Many surgeons have accomplished the desired result merely by making a deep incision into the tissues of the mediastinum through the jugulum. At times suction has been applied to facilitate the escape of air or a catheter introduced with or without suction. Others have attached a specially curved, large bore needle to a syringe and with this instrument have explored the mediastinum. They describe that on occasions air has rushed out so forcibly that the plunger of the syringe has been ejected. Rarely these simple methods have not sufficed. Wustmann [14] made an incision through the jugulum, but even with suction no air could be aspirated because the aperture of the mediastinum was obstructed by a substernal goiter. The goiter was removed but still the obstruction persisted, apparently because of the thymus gland and large masses of thymus fat. Then the sternum was split and prompt relief followed.

Appropriate treatment for tension pneumothorax has long been established. It consists in frequent aspiration of the pleural cavity or, better still, the constant maintenance of atmospheric pressure. This may be done by using the apparatus for inducing pneumothorax or more simply by introducing a needle attached to a piece of rubber tubing the other end of which is inserted into a bottle of water. When there is clear evidence of associated mediastinal emphysema it might be an added advantage simultaneously to provide a way for the escape of air from the mediastinum. Gaudrault and Chalmers [15] in 1 case of mediastinal emphysema, occurring as a sequence to interstitial emphysema of the lungs, incised the mediastinal tissues through the jugulum and then induced pneumothorax to collapse the injured lung, hoping in this way to prevent the further escape of air from ruptured alveoli.

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14. Wustmann, O.: Concerning the Occurrence and the Operative Treatment of Interstitial and Secondary Mediastinal Emphysema Following the Induction of Pneumothorax, Deutsche Ztschr. f. Chir. **231**: 506, 1931.

15. Gaudrault, G. L., and Chalmers, D. M.: Emergency Treatment of Traumatic Emphysema of the Mediastinum, New England J. Med. **224**: 940, 1941.

SULFADIAZINE IN TREATMENT OF RELAPSING MALARIAL INFECTIONS DUE TO PLASMODIUM VIVAX

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Interest in malaria has been stimulated in the United States by the high incidence of relapsing malaria in troops returning from service in endemic malaria areas. It has been observed in all hospitals receiving these patients that the relapse rate is high, particularly in Plasmodium vivax malaria. The recognized failure of quinine, atabrine and plasmochin in various dosages, singly and in combinations, to affect the relapse rate materially is a matter of concern and serves to emphasize the importance of developing new methods of treatment. For this reason and because the amount of available quinine has been considerably reduced, a search for more satisfactory compounds continues.

In monkeys the virulent Plasmodium knowlesi strain of malaria is highly susceptible to sulfanilamide.[1]

TABLE 1.—*Recurrences*

Total number of patients treated for malaria (exclusive of sulfadiazine group)	134
Number of patients who had recurrences	62
Percentage of recurrences	46.2

Reports concerning the effectiveness of related drugs on human strains have appeared in the literature during the past few years.[2] While these reports have been somewhat conflicting, the evidence thus far indicates that both quinine and atabrine are more efficient than any other drug so far tested in the treatment of naturally acquired P. vivax infection. The suggestion that sulfonamide compounds might be capable of eradicating an infection which was already clinically suppressed by a previous course of one of the other drugs resulted in the trial of such a program in treatment of a group of patients whose infection originated in the Southwest Pacific area. Furthermore, since it has been shown[3] that there are striking clinical differences between strains and between artificial (induced) and natural (acquired) malaria, it seemed worth while to investigate the effect of sulfadiazine on the particular strain contracted in the Southwest Pacific area.

The present report concerns a series of 33 relapsing infections treated in this fashion at the Percy Jones General Hospital. In each instance the diagnosis was established by demonstrating the parasite in the stained blood smear. Plasmodium vivax was found in every case. In 1 instance (D-10) Plasmodium falciparum gametocytes were also encountered. The patients were not selected but were taken in consecutive order as clinical relapses occurred during a six weeks period in the summer of 1943.

From the Percy Jones General Hospital, Battle Creek, Mich. (Captain Bates).

1. Coggeshall, L. T.: Prophylactic and Therapeutic Effect of Sulfonamide Compounds in Experimental Malaria, Proc. Soc. Exper. Biol. & Med. **38**: 768, 1938.

2. Coggeshall, L. T.: The Cure of Plasmodium Knowlesi Malaria in Rhesus Monkeys with Sulfanilamide and Their Susceptibility to Reinfection, Am. J. Trop. Med. **18**: 715, 1938. Coggeshall, L. T.; Maier, J., and Best, C. A.: Effectiveness of Two New Types of Chemotherapeutic Agents in Malaria, J. A. M. A. **117**: 1077 (Sept. 27) 1941. Johnson, C. E., Jr.: Present Status of Sulfonamide Therapy in Malaria, Am. J. M. Sc. **206**: 327, 1943.

3. Boyd, M. F.: Some Characteristics of Artificially Induced Malaria, Am. J. Trop. Med. **20**: 269, 1940; On the Therapeutic Interruption of Artificially Induced Malarial Infections, ibid. **23**: 49, 1943. Boyd and Kitchen.[4]

DETAILS OF TREATMENT

In all but 3 cases the acute clinical symptoms were controlled by administering 0.1 Gm. of atabrine three times a day for seven days. On the eighth day administration of sulfadiazine was begun according to the following schedule: On the first day 8 Gm. was administered, and then 1 Gm. was given every four hours night and day for one week. This schedule was modified only when the blood level of the drug went above 15 mg. per hundred cubic centimeters. This occurred in only 1 case. At the beginning of the second week the dosage was dropped to 1 Gm. every six hours day and night regardless of blood concentration, provided it did not go too high. Three patients, as indicated in table 2, were given quinine instead of atabrine over either a five or a seven day period, but otherwise standard conditions were maintained throughout. Blood sulfadiazine levels were obtained at the end of the first twenty-four hour period and at three day intervals thereafter. An attempt was made to maintain a blood level of 8 to 10 mg. per hundred cubic centimeters the first week. In the second week we were interested in the effect on the plasmodium of long continued exposure to the drug. The usual laboratory studies were made at the same time. These included leukocyte count, differential smear, hemoglobin and urinalysis. There were no toxic manifestations other than mild microscopic hematuria in 3 patients. This

TABLE 2.—*Observations in the Sulfadiazine Series*

Case No.	Number of Previous Attacks	Medication Other Than Sulfadiazine (Atabrine) Gm.	Sulfadiazine Blood Concentration, Mg. per 100 Cc. Maximum	Average	Minimum	Subsequent Relapses	Interval Until Relapse, Days
1. E-45	1	2.1	11.4	5.3	2.0	Yes (P.V.)	7
2. D-81	2	2.1	7.7	6.3	3.8	Yes (P.V.)	22
3. A-84	2	2.1	9.2	8.4	7.9	No	
4. D-2	3	2.1	12.7	9.1	4.5	No	
5. D-14	2	2.1	11.4	7.9	5.7	Yes (P.V.)	50
6. G-74	1	2.1	12.1	9.8	5.3	Yes (P.V.)	27
7. C-73	4	2.1	9.0	7.4	4.7	Yes (P.V.)	54
8. C-21	2	2.1	10.1	8.0	7.3	Yes (P.V.)	1
9. C-83	2	2.1	10.0	9.4	7.8	No	
10. F-100	2	2.1	11.4	7.1	5.0	No	
11. A-79	2	2.1	13.3	9.1	4.9	Yes (P.V.)	60
12. C-84	2	2.1	8.5	7.0	5.0	No	
13. G-72	3	2.1	8.3	7.4	6.7	Yes (P.V.)	30
14. G-27	2	2.1	6.4	4.7	3.3	No	
15. B-2	5	2.1	8.2	7.9	7.6	Yes (P.V.)	64
16. G-32	5	2.1	8.6	6.2	3.5	No	
17. C-77	0	2.1	13.9	7.1	3.4	Yes (P.V.)	68
18. C-25	1	2.1	6.0	6.1	5.1	Yes (P.V.)	3
19. A-99	3	2.1	11.8	9.0	7.5	No	
20. F-95	2	2.1	12.3	7.7	5.0	No	
21. B-52	1	2.1	12.1	8.9	6.7	No	
22. E-92	5	2.1	9.5	8.1	3.4	No	
23. A-77	3	2.1	10.2	8.1	4.7	Yes (P.V.)	55
24. D-97	3	2.1	12.1	6.4	2.5	No	
25. A-51	2	2.1	10.3	7.8	6.6	No	
26. A-90	1	2.1	8.6	6.9	5.0	No	
27. C-9	1	2.1	10.5	7.0	3.1	No	
28. C-73	10	2.1	9.4	7.1	4.1	Yes (P.V.)	3
29. A-49	2	2.1	9.5	8.4	7.8	No	
30. F-50	4	2.1	9.9	7.8	6.1	No	
		(Quinine, Gm.)					
31. D-8	3	15.0	12.3	10.7	7.8	Yes (P.V.)	33
32. D-10	4	20.0	8.6	5.6	3.0	Yes (P.F. and P.V.)	55
33. C-64	1	15.0	15.0	10.1	7.7	Yes	34
Total number of patients							33
Total number of relapses							16
Percentage of relapses							48.5

P.V.= Plasmodium vivax; P.F = Plasmodium falciparum.

did not require discontinuance of the drug but cleared spontaneously after increase in fluids and alkalization of the urine.

RESULTS

Table 1 shows a relapse rate of 46.2 per cent in 134 patients treated at this hospital from Feb. 15, 1943 to Sept. 15, 1943. As can be seen, these figures were obtained from the number of relapses following all types of treatment employed by us except sulfadiazine therapy. This group was excluded for purpose of comparison. A number of different forms of therapy were employed, consisting of various dosages and combinations of quinine, atabrine and plasmochin. On the basis of their effect on the relapse rate all of these methods of treatment were equally ineffectual. The use of plasmochin was discontinued on August 17, with the exception that it was given to a few persons with P. falciparum malaria. We have not observed any change in frequency of relapses since discontinuing its use.

Table 2 summarizes the pertinent data relative to the sulfadiazine series, such as blood level of sulfadiazine, type of malaria and intervals between treatment and recurrences up to Nov. 1, 1943.

Although it has been only three months since the last member of this group finished treatment, it is felt that sufficient time has elapsed to demonstrate the ineffectiveness of sulfadiazine in preventing recurrences of P. vivax malaria, since 16 of 33 patients, or 48.5 per cent, have already relapsed.

COMMENT

As shown by the charts, the incidence of relapse in the sulfadiazine treated group is almost exactly the same as in the group treated by various combinations of quinine, atabrine and plasmochin, despite the fact that in each instance in the sulfadiazine series the acute attack was controlled by atabrine or quinine. Conditions were standard for all patients, and satisfactory blood levels were maintained. The average of concentration per patient ranged from 4.7 to 10.7 mg. per hundred cubic centimeters. In the 16 cases that relapsed after sulfadiazine therapy the average blood concentration was 7.7 mg. per hundred cubic centimeters, while in 17 who have not yet relapsed it was 7.6 mg. In the relapsing cases the average peak concentration was 10.6 mg. per hundred cubic centimeters and the peak range from 7.7 to 15 mg., while in the nonrelapsing cases the average peak concentration was 10.2 mg. and the range from 6.4 to 12.7 mg. per hundred cubic centimeters. It is evident that there was no essential difference in blood concentration obtained in the two groups and that this therapy has no value in preventing relapses of P. vivax malaria. It is realized that there is considerable variation in susceptibility to treatment among strains of the same species, and this may be an important factor in the poor results obtained in this series. It is known that when a foreign strain is introduced into nonimmune persons the character of the infection tends to be more severe. Therapeutic malaria has been generally recognized as being far more susceptible to quinine, and the tendency to recurrences is much less. This relates particularly to any artificially induced malaria, where the relapse rate is practically nil. Most antimalarial drugs give satisfactory results in such patients. It is possible, therefore, that sulfadiazine may be useful in the treatment of therapeutic malaria, whereas it appears to be of no value in preventing relapses in naturally acquired Plasmodium vivax of the type encountered in soldiers returning from the South Pacific.

It is significant that only 1 patient in this group had his initial attack of clinical malaria in this hospital. It is generally accepted that each relapse reduces the chance of another one. The group receiving sulfadiazine showed no appreciable variation in the number of previous attacks from those treated with atabrine or quinine alone. As a matter of record, the average number of previous attacks for the group relapsing after sulfadiazine was 2.5 and for the nonrelapsing group it was 2.7. Consequently one can dismiss such a factor in the comparison of the recurrence rate between the two groups.

It seems worth while to discuss the problem of these persistent P. vivax malarial infections acquired in the South Pacific. There is considerable speculation at the present time as to whether they are more virulent and whether they have a greater tendency to have renewed clinical activity than strains of the same species reported elsewhere. In field studies there is always present the difficulty of differentiating relapses from reinfections. The most conclusive results come from the observations in therapeutic malaria, where the possibility of reinfections has been eliminated. Boyd's [4] investigations have shown that 68, or 45.6 per cent, of 149 patients whose infections were initiated by infected mosquitoes with the McCoy strain of P. vivax malaria had renewed clinical activity after termination of the initial attack. In this respect these experiences are comparable to those encountered at the Percy Jones General Hospital. However, there is one striking difference; whereas in Boyd's 146 patients 68 had only one recrudescence,[5] 23 had two, 8 had three, 4 had four, 2 had five and only 1 had six. The tendency for more recrudescences in the South Pacific infections was much greater, as over 50 per cent of the patients had more than three recrudescences and a few as many as twelve. It might be stated that this again could be attributed to the fact that this was a selected group, but most of the cases were not returned because of recurrent malaria but because of other disablements. Hence it seems from comparisons of the available data for these patients and Boyd's studies that the South Pacific P. vivax malaria has a greater tendency for persistent infections. The subject will be covered in greater detail in later studies from the same institution in connection with the complement fixation reaction and diagnosis of malaria.

SUMMARY AND CONCLUSIONS

Thirty-three patients with vivax malaria acquired in the Southwest Pacific area were treated with sulfadiazine over a two week period. Acute clinical symptoms were controlled by a course of atabrine or quinine immediately preceding sulfadiazine therapy. Sulfadiazine blood levels of 4.7 to 10.7 mg. per hundred cubic centimeters were obtained in each instance. Follow-up on these patients three months later revealed that 16 had relapses, an incidence of 48.5 per cent, whereas our relapse rate for patients treated by usual courses of atabrine or quinine was 46.7 per cent.

Sulfadiazine is of no value in preventing relapses in the strain of P. vivax malaria naturally acquired in the Southwest Pacific area and deserves no place in the therapy of this type of malaria.

4. Boyd, M. F., and Kitchen, S. F.: Recurring Clinical Activity in Infections with McCoy Strain of Plasmodium Vivax Malaria, Am. J. Trop. Med. **17**: 833, 1937.

5. The word "recrudescence" is preferred following S. P. James's suggestion (Some General Results of Induced Malaria in England, Tr. Roy. Soc. Trop. Med. & Hyg. **24**: 477, 1931) that they are sequels to the initial attack occurring within eight weeks after the previous one. Most of the infections studied at the Percy Jones Hospital fell into that category. James designated a relapse as a renewed attack of clinical activity occurring after a quiescent period of eight weeks to six months.

COLON SURGERY AND THE SULFONAMIDE DRUGS

WITH ESPECIAL REFERENCE TO THE ELIMINATION OF THE MIKULICZ OPERATION

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PHILADELPHIA

Results of colon surgery at the turn of this century, as compared with the results of the present day, are marked by great improvement in recent years. This improvement has been due to many factors. The most important of all has been the careful preoperative preparation of the patients. Formerly, patients were admitted to the hospital and in a day or two were operated on. The bowels were full of feces and teeming with bacteria, and as a result the mortality after operation often ranged from 60 to 70 per cent, even in the hands of the best surgeons.

In the past ten or fifteen years, however, it became apparent that certain measures could be taken to reduce mortality. It was shown that one cause of the high morbidity and mortality was lack of preoperative preparation. It became an axiom in our service that operation should not be performed unless preceded by at least a week's preparation. This preparation, which consisted of a preliminary purge followed by colonic irrigations, a liquid diet and parenteral feeding, is well known. Blood transfusions before, during and after operations became a routine measure. The results obtained with this method showed an appreciable improvement. There was an immediate reduction in the mortality following operations on the colon after this regimen.

Then with the introduction of the sulfonamides, a new era in the surgery of the colon was inaugurated. Sulfanilamide was given by mouth, the primary dose being 120 grains (8 Gm.) in twenty-four hours, followed by a reduction in the dosage each day up to the time of operation. Before closing the abdomen 5 to 8 Gm. of sulfanilamide crystals was placed in the peritoneal cavity.

Like all innovations in medicine, the new bactericidal or bacteriostatic agents were not universally accepted. Even now there is some skepticism about the efficacy of these drugs, and rightly so, in certain conditions. I was one of those to whom the magical effects of the drug had to be demonstrated. But it was not long before the benefits were practically illustrated, especially in streptococcic infections.

SUCCINYLSULFATHIAZOLE

In January 1939 we first used the sulfonamides in colon surgery. In 1941 Poth and Knotts [1] introduced the use of succinylsulfathiazole, which has enabled us to change our technic in colon surgery, just as the use of vitamin K has given us an added security against postoperative hemorrhages in the jaundiced patient.

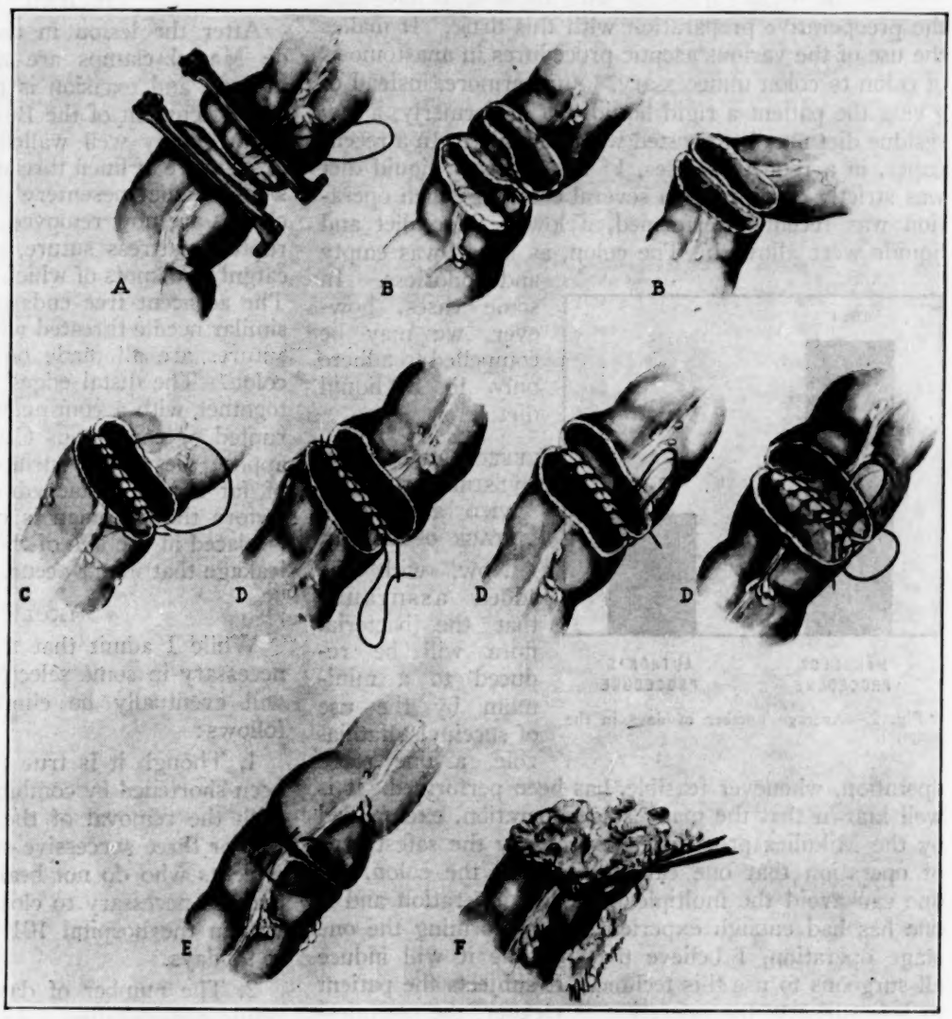

Fig. 1.—*A*, first suture of linen thread on adjacent sides of the mesentery of the colon; *B*, interrupted mattress suture on an atraumatic needle with catgut, the knots of which are tied within the bowel; *C*, the adjacent free ends of the colon are sewed with a similar needle, threaded with 00 chromic gut; *D* (1, 2 and 3), the distal edges of the colon are brought together with a continuous Connell suture; *E*, interrupted or continuous Czerny-Lambert sutures appose the serous surface; *F*, any available piece of fat is attached over the line of suture.

Sulfonamides introduced intraperitoneally before the abdomen is closed are of benefit, and this policy has given our best results.

My associates and I experimented with most of the sulfonamide drugs as they were introduced, from sulfanilamide to sulfanilylguanidine, but we feel that succinylsulfathiazole is a product of real merit in rendering the coliform bacilli inert. This gives it an additional

From the services of the Jewish and Mount Sinai hospitals.
Read before the Section on Gastro-Enterology and Proctology at the Ninety-Fourth Annual Session of the American Medical Association, Chicago, June 15, 1944.

1. Poth, E. J., and Knotts, F. L.: Succinylsulfathiazole: A New Bacteriostatic Agent Locally Active in Gastrointestinal Tract, Proc. Soc. Exper. Biol. & Med. **48**: 129-130 (Oct.) 1941. Poth, E. J.: Succinylsulfathiazole: Adjuvant in Surgery of the Large Bowel, J. A. M. A. **120**: 265-269 (Sept. 26) 1942.

advantage in the preparation of the patient. There is no necessity of estimating the blood concentration, because succinylsulfathiazole has no toxic effects. It simplifies considerably the preparation of the patients who are about to be operated on for cancer or any other lesion of the colon. The drug should be given in doses of 0.25 Gm. per kilogram of body weight for at least a week before the contemplated operation. It has been shown that it is not necessary, with the administration of this drug, to give colonic irrigations, because the drug has the property of diminishing the contents of the intestinal tract, rendering it practically empty. It is amazing to compare patients who have been prepared without succinylsulfathiazole with those who have had the preoperative preparation with this drug. It makes the use of the various aseptic procedures in anastomosis of colon to colon unnecessary. Furthermore, instead of giving the patient a rigid liquid diet as formerly, a low residue diet may be ingested with impunity. In a recent paper, in a report of cases, I [2] stated that a liquid diet was strictly enforced. In several cases in which operation was recently performed, a low residue diet and liquids were allowed. The colon, as usual, was empty and odorless. In some cases, however, we may be compelled to adhere only to a liquid diet.

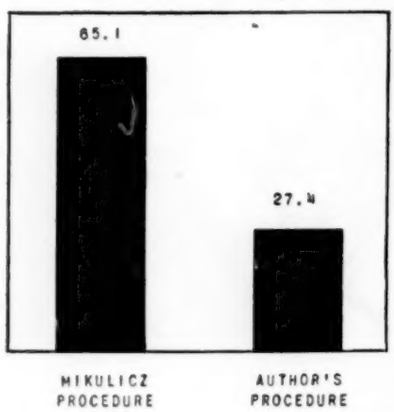

Fig. 2.—Average number of days in the hospital.

EFFECTS OF SUCCINYLSULFATHIAZOLE AND THE ONE STAGE OPERATION

Now, with the added assurance that the bacterial flora will be reduced to a minimum by the use of succinylsulfathiazole, a one stage operation, whenever feasible, has been performed. It is well known that the many stage operation, exemplified by the Mikulicz procedure, is probably the safest type of operation that one can perform on the colon. If one can avoid the multiple procedure operation and if one has had enough experience in performing the one stage operation, I believe that in time it will induce all surgeons to use this technic. It subjects the patient to less surgery, the operation is cleaner, the convalescence is much shorter and the cost to the hospital and patient is greatly reduced. For example:

E. D., a Negro woman aged 50, admitted to the Mount Sinai Hospital in the service of Dr. Abraham Trasoff on March 3, 1944, was in good health until a month before, when she began to have generalized abdominal pain. She noticed also that the abdomen began to swell. She had loss of appetite with increasing constipation and lost a few pounds in weight. She had high blood pressure for the past seventeen years and suffered a stroke in September 1942, with hemiplegia of the left side. The blood pressure was 220/140, hemoglobin 48, red blood cell count 7,800,000. She had a carcinoma of the transverse colon close to the hepatic flexure. The tumor was widely excised, and an end to end anastomosis was performed. Exactly two weeks after the operation she was discharged from the hospital, whereas after the old type operation, with its many inconveniences, she would have been in the hospital from eight to twelve weeks.

The pathologic diagnosis was primary, obstructing, annular, ulcerating adenocarcinoma infiltrating all the coats of the colon, the lymphatic channels and the serosal layer.

There was no semblance of infection. No drainage was used, but it is now thought preferable to use a Penrose drain without gauze down to the point of anastomosis. In the past twenty-five years this has been the only patient of the colored race operated on in a large series of cancer of the colon. She was hypertensive and was characteristically afraid of an operation. She died suddenly, while doing her housework, three weeks after her operation.

TECHNIC OF OPERATION

After the lesion in the colon is reached, Stone or de Martel clamps are applied above and below the growth, and excision is performed with the aid of the cutting current of the Bovie apparatus. With the peritoneal cavity well walled off with gauze sponges, the first suture of linen thread is then begun on the adjacent sides of the mesentery of the colon (fig. 1 *A*). The clamps are now removed. The next suture is an interrupted mattress suture, on an atraumatic needle with catgut, the knots of which are tied within the bowel (*B*). The adjacent free ends of the colon are sewed with a similar needle threated with 00 chromic gut (*C*). These sutures are all made on the posterior portion of the colon. The distal edges of the colon are now brought together with a continuous Connell suture (*D*). Interrupted or continuous Czerny-Lembert sutures of linen appose the serous surfaces (*E*). Any available piece of fat is then attached over the line of suture (*F*). Before the abdomen is closed, a piece of rubber dam is placed at the site of the operation to take care of any leakage that might occur.

MIKULICZ OPERATION

While I admit that the Mikulicz operation may be necessary in some selected cases, its field of usefulness will eventually be eliminated. The reasons are as follows:

1. Though it is true that the number of stages has been shortened by combining the first and second stages with the removal of the growth, nevertheless at least two or three successive steps are required, and in some patients who do not heal kindly, additional procedures may be necessary to close the colostomy. One patient was in the hospital 101 days—others ranged from 52 to 96 days.

2. The number of days of bed occupancy is also a prime consideration. As stated, every patient operated on by the Mikulicz method requires at least from eight to twelve weeks of hospitalization. Even if the patients are discharged between operations, the same length of time in the hospital is still required. We have reviewed, especially with this point in view, all cases recorded for the past twenty-five years in which we have performed the one stage in comparison with the two stage operation. The average stay in the hospital of the patient on whom the Mikulicz operation has been performed is 65.1 days. In the one stage procedure the average duration of hospitalization is 27.4 days (fig. 2).

3. Again, the inconvenience from the time the first operation is performed to the closure is considerable on account of the feces covering the field of operation. Several dressings a day are required, with a consequent additional drain on the hospital resources.

2. Behrend, M.: Succinylsulfathiazole (Sulfasuxidine) and the Elimination of the Mikulicz Operation, S. Clin. North America **24**: 238-247 (Feb.) 1944.

ONE STAGE VERSUS MULTIPLE STAGE OPERATIONS

When obstruction is not present, there is seldom any necessity for a two stage operation on the colon for cancer. It is obvious that when there is an obstruction a preliminary colostomy must be performed as a primary procedure.

In secondary abdominal operations, adhesions are always an encumbrance. This is not an issue in the performance of the various stages of the Mikulicz operation, but where we have used the two stage operation in carcinoma of the cecum and ascending colon the adhesions found at the second operation were sometimes almost insurmountable. A one stage ileocolostomy therefore is preferred to the Mikulicz procedure for patients with cancer of the cecum and ascending colon.

The same may be said for the multiple stages of the Lahey and Rankin operations for carcinoma of the rectum. The one stage Miles abdominoperineal operation is so superior that I have practically abandoned the former types of operations.

An operation in which the Mikulicz procedure was avoided is illustrated by the following case:

R. L., a frail, very anemic looking woman aged 67, was admitted to the Jewish Hospital on March 12, 1944 to the service of Dr. Nathan Blumberg. On April 7 the operation was performed. Before admission she complained of abdominal cramps for the past two years. Hemoglobin was 39, the red blood cell count 2,770,000. The blood pressure was 150/70. Many transfusions were given prior to the operation, which was performed on April 4 for carcinoma of the transverse colon. The tumor was easily isolated, a de Martel clamp was applied and the mass was removed. An end to end anastomosis was then performed.

This was a bad risk. The patient looked ten years older than her actual age. Her convalescence was without incident. Her bowels moved on the fifth day following an oil retention enema. She was out of bed on the tenth day and ready for discharge on the fourteenth day following operation. While the Mikulicz operation is also a safe procedure, I believe, in this particular instance, the operation now advocated served its purpose better than the many stage operation.

*Carcinoma of Colon**

Name	Postoperative Days in Hospital	Age	Sulfonamide Drugs	Duration of Symptoms	Type of Operation	Location	Result
E. F.	51	66	Succinylsulfathiazole, sulfanilamide	2 wks.	One stage, end to end anastomosis	Descending colon and sigmoid	Living
C. F.	42	71	Sulfanilamide	5 days	Cecostomy; resection of colon, end to end anastomosis	Perforation of descending colon	Living
H. C.	21	67	Succinylsulfathiazole, sulfanilamide	6 mos.	Resection and end to end anastomosis	Multiple carcinoma of transverse and descending colon	Living
E. K.	25	48	Succinylsulfathiazole, sulfanilamide	7 mos.	Excision and end to end anastomosis	Sigmoid	Living
F. G.	11	50	Succinylsulfathiazole, sulfanilamide	6 mos.	Resection and end to end anastomosis	Polypoid carcinoma of descending colon	Living
M. K.	29	66	Succinylsulfathiazole, sulfanilamide	3 mos.	One stage, end to end anastomosis	Rectosigmoid	Living
J. Z.	35	49	Succinylsulfathiazole, sulfanilamide	2 yrs.	Excision and end to end anastomosis	Rectosigmoid	Living
E. D.	14	50	Succinylsulfathiazole, sulfanilamide	1 mo.	Excision and end to end anastomosis	Transverse colon	Living
R. L.	36	67	Succinylsulfathiazole, sulfanilamide	2 yrs.	Excision and end to end anastomosis	Transverse colon	Living
A. C.	10	60	Succinylsulfathiazole, sulfanilamide	7 mos.	Excision and end to end anastomosis	Descending colon	Living
W. M.	29	64	Sulfanilamide	8 mos.	One stage abdominoperineal	Rectum	Living
N. M.	44	57	Sulfanilamide	4 mos.	One stage abdominoperineal; left ureterectomy	Rectosigmoid	Living
M. B.	24	63	Sulfanilamide	18 mos.	One stage abdominoperineal	Rectum	Living
R. G.	35	52	Succinylsulfathiazole, sulfanilamide	1 yr.	One stage abdominoperineal	Rectum	Living
H. S.	65	70	Sulfathiazole, succinylsulfathiazole	5 wks.	Ileotransverse colostomy	Ascending colon and cecum	Living
H. S.	36	62	Sulfanilamide	3 mos.	Ileotransverse colostomy	Cecum	Living
L. C.	23	67	Sulfanilamide, succinylsulfathiazole	1 yr.	Ileotransverse colostomy	Recurrent carcinoma of transverse colon	Living
F. C.	28	64	Succinylsulfathiazole, sulfanilamide	1 mo.	Ileotransverse colostomy; metastasis to liver	Cecum	Living
B. J.	34	69	Succinylsulfathiazole, sulfanilamide	1 yr.	Ileotransverse colostomy	Cecum	Died, gangrene of fingers
P. L.	69	67	Succinylsulfathiazole, sulfanilamide	1 mo.	Mikulicz	Sigmoid	Living
A. K.	75	55	Sulfanilamide	48 hrs.	Mikulicz	Sigmoid	Living
D. G.	61	60	Sulfanilamide	1 yr.	Mikulicz	Rectosigmoid	Living
P. C.	44	36	Sulfanilamide	1 mo.	1st stage Lahey; 2d stage Lahey	Rectum	Died 6 mos. later; generalized carcinomatosis
A. D.	14	54	Sulfanilamide	6 wks.	Colostomy	Sigmoid	Living
M. G.	31	49	Sulfanilamide	5 mos.	Colostomy	Rectum	Living

* Whenever succinylsulfathiazole is found in the same bracket above with sulfanilamide or sulfathiazole, the latter drugs, in 5 to 10 Gm. doses, are placed in the peritoneal cavity before the abdomen is closed. Spinal anesthesia was used.

MORTALITY AND MORBIDITY

In 1943 there was not recorded a death in twenty-four successive colon operations. These operations included all the types of procedure, depending on the location of the lesion. It must be stated here, however, that we did not begin the use of succinylsulfathiazole until August 1943. No case in this series was treated without some type of the sulfonamides such as sulfanilamide, sulfathiazole or sulfanilylguanidine. The outstanding difference with the use of succinylsulfathiazole is well expressed in Poth's statement that "the drug given in

therapeutic doses alters the feces, because they become semifluid and practically odorless. The coliform organisms are reduced to such low values that B. coli cannot be demonstrated by growth on desoxycholate plates." All multiple and one stage operations were performed under spinal anesthesia, with the results shown in the table.

On December 31 the twenty-fifth patient died from multiple emboli of the ulna and radial arteries causing gangrene of the fingers of the left hand:

B. J., a woman aged 70, admitted to the Jewish Hospital on Nov. 19, 1943, had been admitted four years before for carcinoma of the rectum with involvement of the posterior vaginal wall. A one stage abdominoperineal operation was performed at that time, with a resulting permanent colostomy. She made a good recovery and lived a normal life until her next admission in November 1943. At this time a mass was felt in the right iliac region, which also proved to be cancer. A one stage ileotransverse colostomy was performed. About three weeks before her death she developed cyanosis of the fingers of the left hand, followed by gangrene of these digits (fig. 3).

This case illustrates the fact that successive carcinomatous lesions in different parts of the colon in the same individual may occur after the primary lesion has been operated on. Four years before the first lesion was in the rectum; the second was in the cecum and ascending colon. She unfortunately was attacked by multiple emboli affecting the left hand and fingers, ending in dry gangrene. This was followed by cyanosis and signs of beginning gangrene of the right hand and fingers.

Fig. 3.—Gangrene of fingers following operation for carcinoma of the cecum and ascending colon.

The use of spinal anesthesia must be considered as another contributing factor in the reduction of the mortality of colon cases. When a prolonged operation is contemplated, continuous spinal anesthesia is employed; in other cases a single dose of 150 mg. of procaine is used. Since 1928, spinal anesthesia has been used for over 90 per cent of the patients operated on.

SUMMARY

As stated in the beginning of this paper, good colon surgery was done before the entrance of the sulfonamides. Better results were due to an insistence on the preparation of these patients at least a week before operation. With a primary purge and an absolute liquid diet, the contents of the bowels were greatly reduced. In addition, parenteral fluids and blood transfusions were given.

It remained, however, for the sulfonamides to reduce the number of cases of peritonitis and infections.

The ultimate, however, was reached when succinylsulfathiazole was introduced. Here was a drug that could be given in large doses without toxic effects. It reduced the number of coliform bacteria per gram of wet stool from 10,000,000 to 100 organisms. It enabled us to reduce the several stage Mikulicz operation to a single procedure.

255 South Seventeenth Street.

STUDIES ON MERCURIAL DIURESIS

V. SUDDEN DEATH FOLLOWING INTRAVENOUS INJECTION

REPORT OF THREE CASES, WITH ELECTROCARDIOGRAPHIC STUDIES IN TWO

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Mercury is a protoplasmic poison. It precipitates protein. The clinical use in the form of the nonionizable compounds in the organic mercurial diuretics has become very extensive in the therapy of edema and the symptoms resulting from accumulations of fluids. This diuretic action is just as powerful in the ionizable inorganic mercury compounds as in the organic ionizable combinations.

The diuretic action represents the very early toxic action of mercury on the renal tubules. The positive mercury ion released in small amounts from the organic mercurial diuretic accounts for the renal and diuretic effects. Sollmann, Schreiber and Cole have demonstrated that ionizable inorganic compounds of mercury are more potent in diuretic action than nonionizable organic mercurials. Mercury has been known for its diuretic activity since the time of Paracelsus and was a constituent of the Guy's Hospital pill, which contained calomel, squill and digitalis.

The earliest reports of sudden death were made by Redlick [1] in 1925 with three deaths from the use of novasurol. Intravenous salyrgan was indicated as the cause of death by Wolf and Bongiorno [2] in 1931. Sundaram [3] added one in 1934 and Greenwald [4] and Seymour reviewed two deaths in 1937. Another fatal episode was noted by Tyson [5] in 1941. Several extensive clinical reports appeared in 1941 and 1942, adding to the published fatalities, all appearing suddenly during or shortly after the intravenous injection of an organic mercurial diuretic administered to promote the removal of fluid from the body.

Experimentally in 1922 Salant and Kleitman [6] had observed ventricular fibrillation in dogs following intravenous administration of inorganic mercurial salts and mercurochrome. Jackson [7] in 1926 reported that he was able to produce death regularly by ventricular

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1. Redlick, F.: Wien. klin. Wchnschr. **38**: 359 (March 26), 1925.
2. Wolf, I. J., and Bongiorno, H. D.: Canad. M. A. J. **25**: 73 (July) 1931.
3. Sundaram, S. K.: Idiosyncrasy to Salygran, Correspondence, J. A. M. A. **103**: 60 (July 7) 1934.
4. Greenwald, H. M., and Jacobson, S.: J. Pediat. **11**: 540 (Oct.) 1937.
5. Tyson, Mary Catherine: Danger of Intravenous Mercurial Injection, J. A. M. A. **117**: 998 (Sept. 20) 1941.
6. Salant, William, and Kleitman, Nathaniel: J. Pharmacol. & Exper. Therap. **19**: 315 (May) 1922.
7. Jackson, D. E.: J. Pharmacol. & Exper. Therap. **29**: 471 (Oct.) 1926.

fibrillation within three to five minutes in normal dogs under ether anesthesia by intravenous injection of various mercurial compounds.

Chastain and Mackie[8] in 1940 studied the effects of the sodium salt of pyridinedicarboxymercuri hydroxy propylamide theophylline (Esidrone), an organic mercurial diuretic combined with theophylline, when given intravenously to normal dogs under barbiturate anesthesia. By using five or six times the corresponding clinical dose they were regularly able to produce death by ventricular fibrillation. They found that twelve to fifteen seconds after the intravenous administration the electrocardiogram showed deviations of the ST interval and ST junction and the T waves followed by ventricular flutter and ventricular fibrillation. Death occurred in three to five minutes. We have published four investigations on Esidrone since 1938. This contribution represents the fifth report on the use of Esidrone. We observed Chastain and Mackie's report but found that their fatal results appeared consistently only after fifteen times the usual corresponding clinical dosage, so we did not attach to it the significance it probably deserved.

A symposium of several articles dealing with the toxicity of mercurial diuretics and reports of a considerable number of deaths appeared in THE JOURNAL on July 25, 1942. The contributions were made by DeGraff and Lehman,[9] Barker, Lindberg and Thomas,[10] Brown, Friedfeld, Kissin, Modell and Sussman[11] and DeGraff and Nadler.[12]

DeGraff and Lehman studied the relative toxicity of the various organic mercurial diuretics on the commercial market. Their work, carried out on cats, was very comprehensive and corroborated the evidence presented by Salant and Kleitman, Jackson, and Chastain and Mackie. DeGraff and Lehman showed that Esidrone was the most toxic of the mercurials, followed in order by salyrgan, mercurin, mercupurin with salyrgan theophylline, the least toxic. They demonstrated that the added theophylline radical played no important role in the production of sudden death and that previous treatment by various drugs such as ammonium chloride, phenobarbital, intravenous aminophylline and digitalis had no effect on the lethal dose of at least one of the mercurials. They also observed that dilution of the drugs is of little value in preventing sudden death. Nor were they able to prove that the rate or speed of the intravenous injection contributed to the toxicity and fatal termination. H. T. Hyman[13] believes that the reactions and sudden deaths are due to technical and not pharmacodynamic reactions. He maintains that the reaction resembles the syndrome of speed shock, anaphylactic or anaphylactoid responses, in which the blood is rendered noncoagulable. However, the evidence would seem to indicate that death is caused by the direct action of these drugs on the heart. Ventricular fibrillation or respiratory failure secondary to cardiac action is the usual manifestation and cause of death. Ventricular tachycardia frequently precedes the onset of ventricular fibrillation.

8. Chastain, L. L., and Mackie, G. C.: South. Med. & Surg. **102:** 5 (Jan.) 1940.

9. DeGraff, A. C., and Lehman, R. A.: The Acute Toxicity of Mercurial Diuretics, J. A. M. A. **119:** 998 (July 25) 1942.

10. Barker, M. H.; Lindberg, H. A., and Thomas, M. E.: Sudden Death and Mercurial Diuretics, J. A. M. A. **119:** 1001 (July 25) 1942.

11. Brown, George; Friedfeld, Louis; Kissin, Milton; Modell, Walter, and Sussman, R. M.: Deaths Immediately Following Intravenous Administration of Mercupurin, J. A. M. A. **119:** 1004 (July 25) 1942.

12. DeGraff, A. C., and Nadler, J. E.: Review of Toxic Manifestations of Mercurial Diuretics in Man, J. A. M. A. **119:** 1006 (July 25) 1942.

13. Hyman, H. T.: Sudden Deaths After Use of Mercurial Diuretics, J. A. M. A. **119:** 1444 (Aug. 22) 1942.

REPORT OF CASES

CASE 1.—W. S., a white youth aged 20 years, first examined May 2, 1940, gave a history of rheumatic fever and known heart disease for the previous nine years. The presenting complaints were dyspnea, orthopnea and cough, with edema of the lower extremities. The patient weighed 109 pounds (49 Kg.), the respiratory rate was 30 and he had an irregular pulse of auricular fibrillation with a rapid rate of 130 per minute. The blood pressure was 104/60. He was in definite congestive heart failure, with the left heart border extending to the left midaxillary line. The rapid irregular rate and presystolic, systolic and diastolic murmurs were audible over the precordial area. The liver extended almost a hand's breadth below the costal margin, with pronounced edema grade 4 of the lower extremities. The urine contained 4 plus albumin with a specific gravity of 1.026. The Kahn reaction was negative. The blood count showed normal findings. The chest film corroborated the pronounced enlargement of the heart, and the electrocardiogram demonstrated the auricular fibrillation. The diagnosis was rheumatic heart disease, with mitral stenosis and mitral regurgitation, aortic regurgitation, pronounced hypertrophy and dilatation of the right and left ventricles, the left auricle, auricular fibrillation and severe congestive heart failure.

Under rest, sedatives and digitalis 300 mg. the congestive failure disappeared and the ventricular rate was brought down to about 66, when a maintenance dosage of 200 mg. daily permitted the patient a fair degree of activity, although he could not go to work. He was seen at approximately three week intervals as an office patient until Sept. 4, 1941, about sixteen months after the first consultation, when a weight gain of 10 pounds (4.5 Kg.) was noticed. The digitalis was increased, but the next office visit showed an additional gain of 8 pounds (3.6 Kg.) on Oct. 6, 1941, when he was told to remain at home, where he was visited every few days. The response to digitalis 500 mg. daily was unsatisfactory. The signs of congestive failure became pronounced, with the symptoms severe, so 1 cc. of mercupurin was administered intravenously.

A diuretic response of 4,100 cc. resulted. Three days later a second dose of equal amount was used with 1,300 cc. output in twenty-four hours. The symptoms did not improve with a third injection of 1 cc. two days later, with only 1,000 cc. of urine. Two cc. of mercupurin from the same box was given two days later. The injection was made at a rate similar to the previous administrations, rather rapid in all instances. Very shortly after the withdrawal of the needle the patient complained of pain in the precordium, was very restless and became rapidly unconscious, with convulsive movement of the eyes and general twitching of the skeletal muscles. The pulse prior to injection was rapid and irregular, becoming very rapid as the symptoms of the episode appeared, finally became thready and disappeared. Death occurred within a few minutes after the injection. The clinical evidence supported the diagnosis of the onset of ventricular tachycardia followed by ventricular fibrillation.

CASE 2.—W. M., a white man aged 68, entered Cook County Hospital on April 14, 1938 complaining of shortness of breath, loss of appetite and swelling of the legs and abdomen of one year's duration. The past history was irrelevant.

The patient breathed with extreme difficulty. There was cyanosis of the finger nails. The blood pressure was 166/102. The cardiac apex was palpated at the left anterior axillary line in the sixth interspace. A loud systolic murmur was audible over the apex and at the aortic cartilage. The heart tones were distant and rapid; the rate was 130 per minute but regular. Rales of congestion were audible in the lungs. The liver was three finger breadths below the costal margin. Free fluid was present in the abdomen. Peripheral edema was massive. The laboratory evidence showed a negative Kahn reaction, red blood cells 4,530,000, white blood cells 7,300. Hemoglobin was 70 per cent and the differential count was 56 per cent lymphocytes and 44 per cent polymorphonuclears. The nonprotein nitrogen was 43 mg. per hundred cubic centimeters. Blood carbon dioxide was 48 volumes per cent. The urine showed a specific gravity of 1.020, albumin 2 plus, sugar negative. The x-ray film demonstrated cardiac enlargement,

some enlargement of the aortic arch and pulmonary congestion. The diagnosis was hypertensive and arteriosclerotic heart disease with pronounced enlargement of the heart and congestive heart failure, grade 4. The electrocardiogram taken three days after admission showed left axis deviation, auricular extrasystoles, ST junction depression in lead 4, the ST interval and

Fig. 1 (case 2).—Tracing of April 17, 1938.

T changes in leads 1, 2 and 4. Part of the latter evidence presumably could be from the heavy digitalis medication which was initiated shortly after admission and for three days prior to the electrocardiogram. Morphine and atropine were employed to quiet the patient. On April 18, 1938, 1 cc. of Esidrone was administered with a 5,900 cc. urinary output resulting and much improvement. This continued at a rapid pace, and the patient showed such amelioration that on April 28 he was discharged to the cardiac outpatient clinic with compensation completely restored. He continued to attend the clinic at irregular intervals, using digitalis as advised. He was readmitted to our hospital service on Aug. 20, 1938. Digitalis was increased. On August 24 1 cc. of Esidrone was given intravenously. A pronounced diuresis ensued, and he requested discharge on August 26, promising to attend the cardiac clinic.

His next admission occurred on Oct. 8, 1938, again with decompensation. The same routine was instituted but on Oct. 11 2 cc. of Esidrone was given with 4,900 cc. urinary output, and much improvement in his clinical symptoms. He was discharged Oct. 19, 1938, edema free.

His last admission occurred on Nov. 6, 1938, with anasarca and severe symptoms. The digitalis, morphine and atropine

Fig. 2 (case 2).—Four lead electrocardiogram before injection of intravenous mercurial.

were given as before on his previous admissions. Esidrone 1 cc. was injected intravenously on November 8 and 2 cc. on November 11. Good diuresis was obtained. On November 15 a recheck electrocardiogram (fig. 2) was made just prior to injection of 2 cc. of Esidrone, administered intravenously at a rate similar to all other injections. Attention is directed to the PR interval of 0.22 second present prior to the injection. Within a few seconds after the injection the patient became extremely restless and decidedly dyspneic, with a rapid, weak, irregular pulse. The electrocardiograph was rapidly attached to the patient and a four lead tracing taken (fig. 3) showing the ventricular fibrillation. Death ensued a few minutes after the injection. Five injections were given intravenously to this patient prior to the last injection and two of the five were of equal potency to the dosage of the final injection.

Case 3.—In a series of studies on diuresis produced by mercurials injected intravenously, as previous publications have indicated, the methods included repeated and frequent electrocardiographic tracings. One study embraced the immediate effect of the mercurial injection on certain cardiodynamic records. One method of procedure included the immediate action of the drug on the electrocardiographic tracing, necessitating

Fig. 3 (case 2).—Ventricular fibrillation about three minutes after intravenous injection.

Fig. 4 (case 3).—Four lead electrocardiogram immediately before intravenous injection.

continuous attachment of the patient to the electrocardiograph through lead or derivation 2. This patient was number 76 in a series studied on this particular investigation and the injection was number 1438, many of which were injections on private patients, a few even injected in the office on ambulatory cardiac patients. This introduction to case 3 is given to indicate that we were prepared to take continuous tracings, which were done in the unfortunate case to be described, surprised and excited as we were at the disastrous episode.

A white woman aged 69 was admitted on March 12, 1940 with an examining room diagnosis of organic heart disease with decompensation. She gave a history of dyspnea, orthopnea, cough and edema of long duration. The dyspnea first appeared on exertion and subsequently became severe with pronounced nocturnal attacks. The past history revealed no evidence bearing on her present complaint, nor did an inventory of the various systems indicate any important additional complaint.

The patient was well preserved and weighed about 165 pounds (75 Kg.). She sat up in bed because of difficulty in breathing. The temperature was 97 F., the respiratory rate 44. She had a very irregular pulse of auricular fibrillation with a rate of 140 and a blood pressure determination of 160/110. The left heart border extended beyond the left anterior axillary line in the sixth intercostal space; the heart sounds were clear, with the irregular character of auricular fibrillation, very rapid, 125 per minute, with a systolic murmur at the apex. There was flatness at the right base, indicating fluid and congestive rales throughout the chest on both sides. The liver extended three fingerbreadths below the costal margin and was decidedly tender. There was an extensive edema of the lower extremities. The laboratory studies revealed on urinalysis a specific gravity of 1.020, albumin a trace, sugar a trace, epithelial casts and 1 to 5 pus cells per field. The nonprotein nitrogen was 3.1, creatinine was 2.3 and blood chlorides were 445 mg. per hundred cubic centimeters. The Kahn reaction was negative. Hemoglobin was 92 per cent. Red blood cells numbered 4,920,000 and white blood cells 11,600, with 76 per cent polymorphonuclears. The chest film revealed pronounced left ventricular enlargement and pulmonary congestion, with evidence of fluid in the right chest. The diagnosis was hypertensive and arteriosclerotic heart disease with pronounced hypertrophy and congestive heart failure. The patient was given 200 mg. of digitalis three times a day, ammonium chloride 2 Gm. three times a day, fluid restriction, and morphine and atropine for sedation.

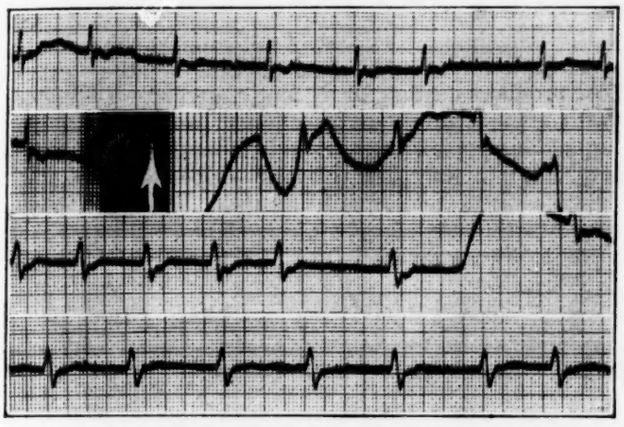

Fig. 5 (case 3).—Entire chart and all subsequent tracings are lead 2 derivation. The injection was made after the control tracing lead 2 in uppermost row. The arrow indicates the time of the intravenous injection. The machine was continuously connected to the patient and all the tracing represents a lead 2 connection. The text describes the sequence of events.

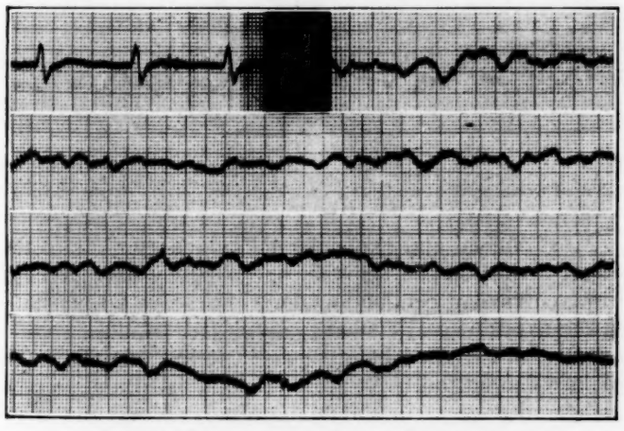

Fig. 6 (case 3).—Change to ventricular fibrillation.

On March 16 the heart and pulse rate had dropped appreciably, but the symptoms, chest signs of fluid, and the edema were not much improved. An injection of a mercurial was decided on to hasten improvement. The preliminary electrocardiographic four lead tracing and a tracing of lead 2 were taken before the mercurial diuretic Esidrone 2 cc. intravenously was given. The instrument was shut off for the injection and then turned on. Immediately on injection, which was rapid, the patient complained of chest pain, became acutely dyspneic, lost consciousness and moved excitedly in the bed. The instrument was still connected and throughout the entire episode was run on lead 2. There were a few short interruptions while the mechanical motor was being wound. The train of events can be described by a discussion of the electrocardiograms. Figure 4 is the four lead electrocardiogram with evidence of auricular fibrillation, an irregular ventricular rate of 80, low voltage R_1, almost isoelectric T_1, depressed ST interval in 2 and 3 with diphasic TS and S in 2 and 3. The influence of digitalis is accountable for most of this evidence. In figure 5 the first top tracing is the control lead 2 electrocardiogram. The tracings are all lead 2 derivations until the termination of the episode. Shortly after the beginning of the second tracing Esidrone 2 cc. was given intravenously, the instrument being turned off for the injection and then immediately started again; the patient began moving, accounting for the straying of the beam, but two things are immediately discernible: first, the ventricular complexes have changed their appearance, now having a duration of 0.15 second compared to 0.06 second, the ST junction has dropped 2 mm. and the T is almost isoelectric. The QRS complexes are more equally spaced at first, 0.64 second, then gradually extending to 0.84 second, until in figure 6 in the first tracing there is a change to ventricular fibrillation, which continues throughout all lead 2 tracings on this chart, with figure 7 indicating a gradual weakening of the cardiac ventricular action and almost heart

Fig. 7 (case 3).—Gradual weakening of cardiac ventricular action.

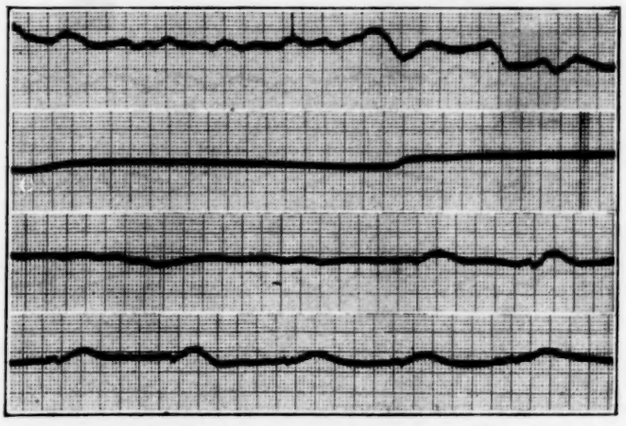

Fig. 8 (case 3).—Almost complete standstill except in bottom tracing, where the movements represent QRS complexes.

standstill in figure 8, until the bottom tracing, when some type of rhythmic activity is noted. This action occurs at 1.2 seconds approximately fifty times a minute. These represent QRS complexes; in figure 9 the deflections succeeding these small QRS movements are T deflections. In figure 10 these small deflections appear rhythmically closer at 0.56 second intervals, gradually subsiding, so that in the first tracing of figure 11 there is cardiac standstill. An injection (at *A*) into the heart of

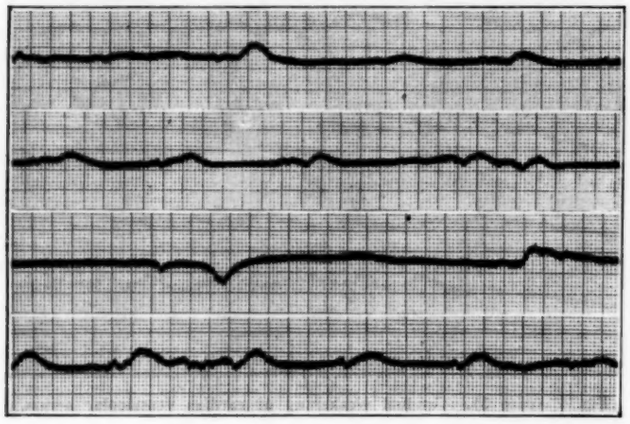

Fig. 9 (case 3).—QRS movements are followed by T deflections.

1 cc. of 1:1,000 epinephrine was followed for twenty-eight seconds with no evidence of cardiac activity in the tracing. The second tracing in figure 11 was a continuation of the twenty-eight second tracing and shows a ventricular impulse followed by a 6.26 second cardiac standstill, then seven similar S deflections with a sudden reversal to upright R complexes with gross notching, each having a duration of approximately 0.2 second. The bidirectional variation of the ventricular complexes does not alter to any significant degree the individual contours. The intraventricular conduction deformity persists. This continues through the first tracing of figure 12 and the initial portion of tracing 2, when cardiac standstill of 1.8 seconds occurs, followed by a single ventricular extrasystole. These upright ventricular complexes are rhythmic, occurring at 0.6 second intervals. They can be interpreted as evidence of a slow ventricular rhythm similar in form to a ventricular

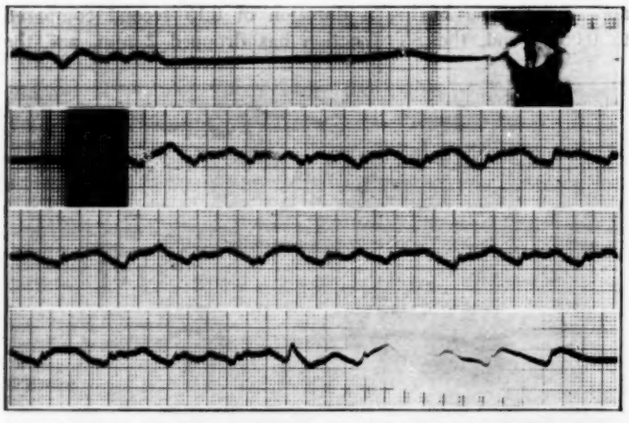

Fig. 10 (case 3).—The small deflections gradually subside.

tachycardia or flutter or parasystole at a rate of 100 impulses per minute. The contour changes again in the third strip, with gradual weakening in figure 13 with long periods of cardiac standstill. The last line of the tracing in chart 10 was continued for fifty-eight seconds and the patient was pronounced dead.

COMMENT

In the review of the clinical reports published it must be noted that many of the deaths occurred in individuals who had received several to many injections of the drugs intravenously. No deaths were found following intramuscular injections, similar to the findings in our first 2 cases. The deaths occurred more frequently when the larger doses were employed. The drugs are dispensed in a 10 per cent solution, 1 cc. giving 100 mg., containing from 35 to 43 mg. of mercury in the different drugs. Thus twice the amount of mercury is used in the larger doses.

Several observers have published electrocardiographic evidence in the experimental observations. Barker, Lindberg and Thomas reveal in detail the changes appearing in the experimental electrocardiogram. The tracings which we demonstrate are the only ones which we have been able to find in the published reports of the sudden deaths.

Experimental evidence does not support the view that sensitization is the mechanism whereby the "shock" dose produces death. Dr. Macht [14] attributes the sudden death after intravenous injection to intravascular clotting. This point of view would emphasize the contributory factor of increased clotting property produced by digitalis when digitalis is being used. Thus Dr. Macht suggests the use of an anticoagulant such as heparin prior to the intravenous use of the mercurial diuretic.

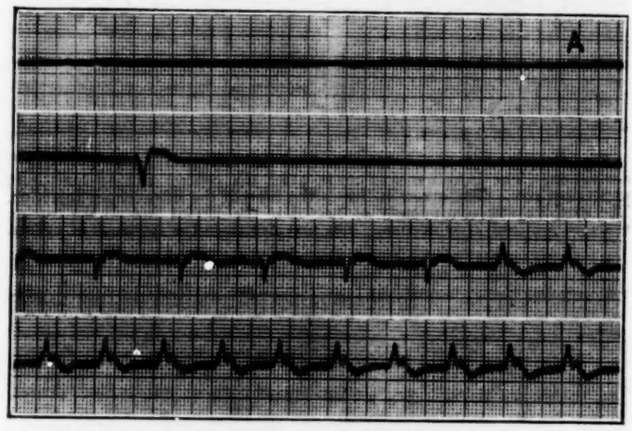

Fig. 11 (case 3).—Cardiac standstill, injection (at *A*) of epinephrine 1 cc., ventricular impulse in second tracing, S deflections in third, followed by reversal to upright R complexes.

Most clinical and experimental evidence points to the direct action on the heart by the mercury ion. Where intraventricular conduction deformities are so constant in the experimental evidence any degree of block should be carefully studied before using the intravenous route of administration. A more careful attitude to the weight: dosage ratio should be observed and the large doses in the small patient probably should not be employed.

It is impossible at the present time to predict which particular injection carries the danger of sudden death. There is no evidence that dilution, slow rate of injection or smaller dosage or prior atropinization will prevent the fatalities. No reports of sudden death have been found from deep intramuscular injection or the rectal or oral use of these substances, although focal abscess at the site of the injection has been experienced and gastrointestinal complications have been met. The other objections to oral, intramuscular or rectal use of the organic mercurials are well established in addition to the more frequent unsatisfactory diuretic results when compared to the intravenous injections.

14. Macht, D. I.: Personal communication to the authors, May 10, 1944.

SUMMARY AND CONCLUSIONS

1. Three patients died suddenly after intravenous injection of a mercurial diuretic. One patient received mercupurin and two Esidrone.

2. Each of the 3 patients received the dose of 2 cc., representing 200 mg. of the drug and 78 mg. and 66 mg. and 86 mg. respectively of the mercury.

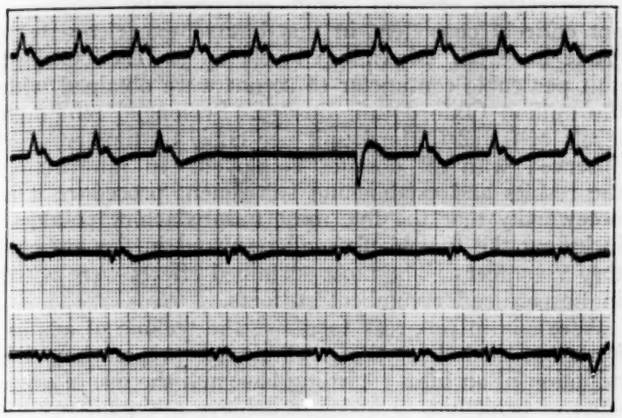

Fig. 12.—Cardiac standstill of 1.8 seconds in second tracing followed by a single ventricular extrasystole. Upright ventricular complexes, the contour changing in the third strip.

3. Two patients had received prior injections of the mercurial diuretics before the fatal episode. There were no reactions to these prior injections.

4. Electrocardiographic studies are available in 2 patients with tracings shortly before and during the reactions.

5. Both patients showed the development of ventricular fibrillation following the drug.

6. In 1 patient an almost continuous electrocardiogram was obtained with lead connection 2 attached. The resulting electrocardiogram showed changes very similar to the experimental electrocardiogram reported

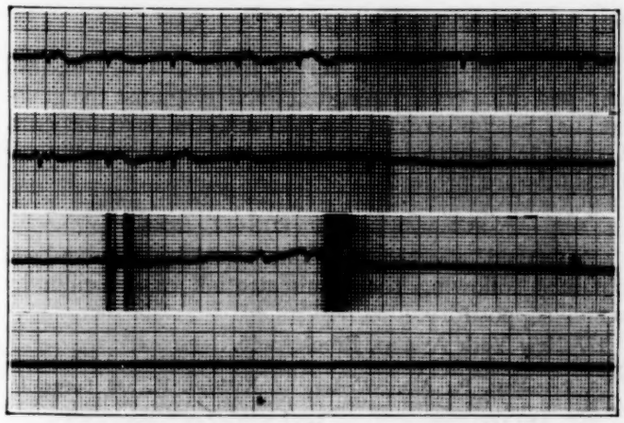

Fig. 13 (case 3).—Gradual weakening, with periods of cardiac standstill.

in the anesthetized dog, such as the changes in the ST junction and the ST interval, the intraventricular conduction deformity and changes in the T waves.

7. Ventricular tachycardia did not occur in the patient with the continuous tracing, although ventricular rhythm of a bidirectional character was noted.

8. Ventricular complexes were resumed after cardiac standstill by intracardiac injection of epinephrine.

9. Intravenous injection of mercurials should not be discontinued, but the realization of danger of their use must be ever present. This is in addition to four such possible other dangers as the dehydration syndrome, the depletion of chlorides, the disturbance of the electrolytic balance and the sudden mobilization of large amounts of digitalis from the edema fluid.

10. The disadvantages of the other avenues of administration should be weighed against the danger of sudden death from intravenous use.

ABSTRACT OF DISCUSSION

DR. JOHN W. SCOTT, Lexington, Ky.: What Dr. Volini and his associates have described is not unrelated to the shock often seen in these patients twelve to twenty-four hours after the injection of the drug. I have had an interesting experience with patients who had suffered such shock to an extent that 1 patient was unwilling to continue the drug. There were 3 of these, all in the seventh decade, 2 with rheumatic heart disease, mitral stenosis and auricular fibrillation, the third with thyrotoxic heart disease and coronary sclerosis. A lyophilized vitamin B preparation, recently introduced, was dissolved in 2 cc. of mercupurin. This immediately yields a crystal clear solution. Given intravenously, diuresis was unimpaired; there were no untoward symptoms. There was freedom in 2 of the patients from the shock which had been disturbing. In the third, distressing muscle cramps, which regularly occurred the night following the injection, were abolished. This method has been used fifty or sixty times on the 3 patients with not a single unfavorable occurrence. It is planned to use some of the components of the B complex singly in order to determine whether one or more than one is responsible for this effect. The action of the diuretic thus modified is more smooth and no less effective.

DR. ITALO F. VOLINI, Chicago: The distinction should be made between speed shock and the collapse or exhaustion subsequent to the injection, as indicated in the twenty-four hour period following an injection. Poll and Stern have indicated that many persons suffer from considerable chloride depletion. This can be combated by giving the patient chlorides. Usually the ammonium chloride which is administered will maintain the chloride balance up to the level that is desired. Of course, most of these patients are seriously ill and many things can happen. Some of them develop vasospastic or even organic encephalopathies; following the injection many of them become quite exhausted. It favors thrombosis. Some even, as attention is called to this in the literature, develop symptoms of renal insufficiency with the development of uremia. One has to be careful in the prediction of prevention of symptoms of shock and define what is meant by shock before one can state that any type of therapy will prevent such a mechanism. In speed shock in the experimental animal the signs of anaphylaxis are frequently found. One finds the evidence of incoagulability of the blood.

Neurotic Conflict Between the Individual and Society.—With its fondness for cults, the world in the past few decades has reared temples to the gods of the normal. The cult of normalcy has gathered about itself priests and prophets who loudly exhort all who would be saved to worship at the shrine of perfection. Apostles swarm the land and invoke the spirits of science in their zeal to bring balm to those unfortunate souls who cannot fit into the Procrustean bed of their own making. Mental hygiene and physical hygiene and spiritual hygiene and political hygiene and a host of other kinds of hygiene are fervently broadcast and foretell the coming of the millennium. The great gods have proclaimed it: all shall be of one measure, all shall be normal. All conflict shall cease, and the soul shall be at peace with itself and the world. Mirabile dictu. —Wechsler, I. S.: The Neurologist's Point of View, New York, L. B. Fischer, 1945.

ADMINISTRATION OF PENICILLIN BY RECTAL SUPPOSITORY

PRELIMINARY NOTE

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AND
PHILIP ROSENBLATT, M.D.
BROOKLYN

Many investigations are being pursued in an effort to circumvent the parenteral administration of penicillin. Several reports [1] indicate the feasibility of oral administration by elimination of the destructive action of hydrochloric acid in the stomach. In general, it requires a fivefold increase in dosage to achieve penicillin serum assays comparable to that obtained by intramuscular injection. The conjoint use of retarding agents has in some measure prolonged the effects of the individual dose.

The rectal administration of penicillin has not been attempted, probably because of the assumption that the presence of the penicillinase-producing colon group of organisms might serve as an impenetrable barrier. Despite our own misgivings in this direction, experiments were undertaken to explore the possibilities of rectal administration because of its simplicity, the wide latitude in the selection of adjuvants and the obvious clinical advantages. Probatory results have been so promising as to merit this preliminary report.

Varying amounts of the sodium salt of penicillin [2] were incorporated by hand in a simple cocoa butter base. Suppositories were inserted rectally without any previous preparation in hospitalized in-bed patients, selected at random, and in healthy ambulatory volunteers. The 14 subjects were instructed to retain the suppository, which caused little, if any, momentary discomfort. Blood samples were withdrawn hourly for twelve hours and after twenty-four hours for penicillin assays.[3]

The results following a single dose penicillin suppository are presented in the table. Appreciable penicillin blood titers were obtained in 12 out of 14 instances. Effective levels were found after twenty-four hours in 2 instances and for four to twelve hours in an additional 7 subjects.

Correlation between dosage and penicillin levels was not entirely consistent in this limited experience with crude material. Maximum levels up to 0.768 Oxford unit per cubic centimeter of serum were obtained with the million Oxford unit dosage. Prolonged minimum levels of 0.012 Oxford unit per cubic centimeter were observed with all dosages employed. In interpreting the results and establishing subsequent procedure it is noteworthy that the five most unsatisfactory results—including the two blanks—all occurred in the ambulatory volunteers. The most sustained effects were noted in hospitalized recumbent patients.

Work is in progress to revise the technic of administration, including the preliminary preparation, the adoption of an ideal retarding base and the use of other salts of penicillin, in order to achieve optimum results.

Penicillin Blood Levels—Oxford Units

No.	Case		Dosage, Million Oxford Units	Hours												
				1	2	3	4	5	6	7	8	9	10	11	12	24
1	L. L.	A*	1.0	0.768	0.144	0.196	0.048	0.048	0.048	0.048	0	0	0	0	0	0
2	H. L.	R†	1.0	0.192	0.024	0.012	0.012	0.012	0.012	0.012	0	0	0	0	0	0
3	M. L.	R	1.0	0.384	0.192	0.048	0.024	0	0	0	0	0	0	0	0	0
4	A. K.	R	0.5	0.048	0.096	0.024	0.024	0.012	0.012	0.012	0.009	0.012	0	0	0.012	0
5	C. G.	R	0.5	0.048	0.048	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0	0	0	0.012
6	L. D.	R	0.5	0.096	0	0	0	0	0	0	0	0	0.012	0.048	0.032	0.016
7	V. W.	A	0.5	0.192	0.024	0.012	0.012	0.012	0.012	0	0	0	0	0	0	0
8	E. M.	A	0.5	0.128	0.036	0	0	0	0	0	0	0	0	0	0	0
9	E. B.	A	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0
10	M. M.	R	0.3	0.012	0.384	0.096	0.024	0.024	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0
11	R. R.	R	0.3	0.030	0.015	0.030	0.015	0.040	0.015	0.015	0	0	0	0	0	0
12	F. K.	A	0.3	0.128	0.032	0	0	0	0	0	0	0	0	0	0	0
13	E. R.	A	0.3	0.012	0.012	0	0	0	0	0	0	0	0	0	0	0
14	M. K.	A	0.3	0	0	0	0	0	0	0	0	0	0	0	0	0

* A indicates ambulatory healthy volunteers. † R indicates recumbent hospital in-bed patients selected at random.

The sustained minimum serum titers of 0.012 Oxford unit per cubic centimeter are effective against the gonococcus, pneumococcus and hemolytic streptococcus. Clinical trials in patients with gonorrhea, pneumonia and tonsillitis are projected.

SUMMARY AND CONCLUSIONS

Prolonged, effective penicillin blood levels have been obtained following the administration of penicillin by rectal suppository.

177 New York Avenue, Brooklyn 16.

Aided by grants from friends of the Hospital and the Dazian Foundation for Medical Research.

From the Department of Medicine and the Department of Laboratories, Jewish Hospital of Brooklyn.

1. Libby, R. L.: The Oral Administration of Penicillin in Oil, Science **101**: 178, 1945. MacDermott, W.; Bunn, P. A.; Benoit, M.; DuBois, R., and Haynes, W.: Oral Penicillin, Science **101**: 228, 1945. György, P.; Vandegrift, H. N.; Elias, W.; Colio, L. G.; Barry, F. M., and Pilcher, J. D.: Administration of Penicillin by Mouth, J. A. M. A. **127**: 639 (March 17) 1945. Little, C. J. H., and Lumb, G.: Penicillin by Mouth, Lancet **1**: 203, 1945.

2. Mr. John L. Smith of Chas. Pfizer & Company, Inc., supplied the penicillin used in this study.

3. Rosenblatt, P.; Alture-Werber, E.; Kashdan, F., and Loewe, L.: A Method for the Determination of Penicillin Levels in Body Fluids, J. Bact. **48**: 599, 1944.

Leprosy in China.—Leprosy is widespread over China, from Manchuria in the north to Kwangtung and Hainan Island in the south and from the province of Chekiang on the east to that of Sinkiang on the west. It is estimated that more than a fourth of the world's 4,000,000 lepers are found in China. At least half of the people of China live in areas in which leprosy occurs. Hospitals and facilities for the treatment of lepers are entirely inadequate. In 1937 only twenty-seven leprosariums, with 4,050 beds, were operating in China.—Simmons, James S., and others: Global Epidemiology, Philadelphia, J. P. Lippincott Company, 1944.

THE Rh FACTOR AND THE PUBLIC HEALTH LABORATORY

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ANNA I. VAN SAUN
Director
AND
EVELYN L. BROWN. B.A.
PATERSON, N. J.

At first glance it would seem that the usefulness of the public health laboratory for Rh factor determinations might be open to question. Certainly it would not have occurred to us to enter a field which up to very recently was rather preempted by hospital laboratories and very few of those.

Our entrance into this somewhat unusual field was due to a request from the Maternal Welfare Committee of the Passaic County Medical Society. One of our largest hospitals was not ready to take on the added burden of Rh determinations for its blood bank and it was suggested that we do this work for them. It was also suggested that, since we received a very large number of specimens for premarital and antepartum Wassermann tests, we should perform Rh determinations on these specimens. Accordingly, after a preliminary period of study we began this work as a routine in June 1944. Blood grouping was also added, since marital blood incompatibility sometimes is due to a difference in blood groups too.

Nearly 3,000 blood specimens have been tested, the great majority of them ante partum. We soon found that there simply was not enough testing serum to include premarital specimens and but 616 of these were tested, of which 12 per cent were Rh negative.

Approximately 15 per cent of the specimens received from antepartum sources were Rh negative. All Rh negative specimens were retested with at least three different serums secured from different sources, and those giving anomalous results were checked by Dr. Philip Levine in his laboratories at Linden, N. J. We feel that checking negatives with several serums is of the highest importance.

We also request a specimen of blood from the husband of each Rh negative woman. The obstetrician secures this for us. Thus far each husband has been cooperative with the exception of 2, who could not see that they had anything to do with it! Of 98 husbands tested, 80 were Rh positive and 14 were Rh negative. The husbands of 4 Rh positive women were Rh negative. Prospects for an Rh negative woman to secure an Rh negative husband are not very brilliant, it would seem. No doubt many more Rh negative husbands would have been noted had all husbands of our antepartum patients been tested.

Of 749 specimens which have been tested for the hospital blood bank 14 per cent were Rh negative, thus forming a nucleus for the hospital's Rh negative donor's club.

The county medical society receives a copy of all our Rh negative results with name and address of the patient. This looks to the formation of a County Rh negative Donor's Club. Of course many of the antepartum patients could not at present be used as donors, but on the other hand the list of usable donors grows.

Seven cases of erythroblastosis have come to our attention through this work. All of the mothers were Rh negative with one exception. All of the fathers were Rh positive. All the babies were Rh positive. The one exception to the Rh negative mothers could not be explained. Father, mother and baby were Rh positive, though the infant was definitely erythroblastotic. Three of the babies lived, as the result of appropriate treatment with transfusions of Rh negative blood. The child of the Rh positive parents died.

But one mother of an erythroblastotic infant developed any appreciable amount of agglutinin.

The members of the Passaic County Medical Society, especially the obstetricians, are well satisfied with the results of our experiment and apparently wish it to be continued.

From the Division of Laboratories, Board of Health, Paterson, N. J. Assistance and suggestions were received from Dr. Alexander Wiener of New York, Dr. Philip Levine of Linden, N. J., and Dr. Theodore Graham and other cooperating members of the Passaic County Medical Society.

Clinical Notes, Suggestions and New Instruments

LOW TEMPERATURE THERAPY FOR PRESERVATION OF LIMBS

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There has recently appeared in the literature an article[1] in which refrigeration anesthesia in surgery is discussed from both the experimental and the clinical point of view. The character of this work on the whole is of such high grade that if all of the author's conclusions are accepted without question or challenge it will cause an unnecessary delay in the application of a therapeutic measure that has proved itself beyond any doubt to be of great value in surgery of the extremities. In the body of the paper the statement is made that "cooling per se does not seem to have a beneficial effect on an inflammatory process. While the infected part is cooled there is an inhibition not only of bacterial growth and toxin production but also of the normal tissue response. Release from the cooling may aggravate the eventual inflammatory response." In the summary the further statement is made that "it was hoped that refrigeration might enable us to preserve the vitality of many limbs suffering from those afflictions which would ordinarily have to be sacrificed. Bacterial growth is retarded by refrigeration, but so also is the tissue response to inflammation, and on the release of the cooling the inflammatory reaction may be even aggravated."

The experience that has been acquired at City Hospital with the use of low temperature treatment, as introduced and originated by Drs. Frederick M. Allen and L. W. Crossman,[2] is so contrary to the assumptions and to the theoretical conclusions that have been drawn by Dr. Richards that the following case is presented:

REPORT OF CASE

Mrs. H. P., aged 57, admitted to the medical service of Dr. A. B. Cannon at the City Hospital on April 18, 1943, had been suffering from a chronic osteoarthritis of the right knee

From the surgical department, City Hospital.

1. Richards, V.: Refrigeration Anesthesia in Surgery, Ann. Surg. **119:** 178, 1944.
2. Allen, F. M.: Reduced Temperatures in Surgery, Am. J. Surg. **52:** 225, 1941. Crossman, L. W.; Ruggiero, W. F.; Hurley, V., and Allen, F. M.: Reduced Temperatures in Surgery: Amputation for Peripheral Vascular Disease, Arch. Surg. **44:** 139 (Jan.) 1942.

for the past four years. Her family history was negative. About six weeks before her admission to the hospital she warmed her feet near an oven and on the next day she noticed a blister on her left knee. A few days later this blister opened spontaneously and discharged a yellow watery fluid. Shortly thereafter the skin on the anterior surface of the leg became red, macerated and excoriated. Examination at the time of admission showed that the skin on the anterior surface of the left leg was red, edematous and macerated. There were irregular patches of necrotic tissue throughout this area. The patient was put on sulfadiazine therapy. On April 25 an urticarial rash developed on the forearms and on the face. This was associated with pruritus and was diagnosed as a drug rash. The chemotherapy was discontinued. In the meantime, in spite of the sulfadiazine treatment, the local condition had become much worse. The necrotic tissue had increased in extent and the adjacent inflamed tissue had become widely undermined and was bathed in pus. Treatment with zinc peroxide was now instituted. During all this time the temperature of the patient was septic.

On May 3 the attending physician advised a midthigh amputation as a life saving remedy and requested surgical consultation. At this time, as surgical consultant, I noted that the patient had an extensive necrotic suppurative cellulitis of the right foot and leg. There was complete absence of cutaneous tissue on the anterior aspect of the leg extending from the junction of the upper and second quarters above to the junction of the third and fourth quarters below. This area extended inward to the posterior aspect of the limb. The tissue external to this area was gangrenous in the lower half of the leg and spottily gangrenous in its upper half. The remaining skin was extensively undermined in all directions. The entire inflamed area was covered by a very foul smelling exudate. The tissues above the infected area extending into the thigh were very edematous. In answer to the question of therapy, an amputation through the thigh would be synonymous with cutting through highly infected tissues resulting either in local stump gangrene or probably general sepsis. For this reason I considered amputation at this time contraindicated. The choice appeared to be between chemotherapy and low temperature treatment. The patient had had chemotherapy while in the medical ward, but the infection continued to spread. For this reason an attempt was to be made to treat the condition with refrigeration. The prognosis was grave. The patient was transferred to the surgical ward and the treatment was instituted.

May 8, twenty-four hours after the application of the treatment, the body temperature had been normal and the odor of the discharges was now entirely gone. There had been a definite regression of the cellulitis, and the general condition of the patient was considerably better.

May 12, for the past twenty-four hours the extremity had been in the air chamber (in this apparatus the temperature of the limb can be kept at the required low level and the uncovered limb can be observed at all times and all changes can be noted). On inspection this morning the air chamber was found to be operating imperfectly, so that the required low temperature had not been maintained. The temperatures in the air chamber and in the room were the same. The limb this morning showed a pronounced reactivation of the infection and was hot to the touch. The patient felt considerable pain in the limb and her body temperature had risen to 102 F. The limb was to be placed back into the refrigeration blanket.

May 14 the acute character of the infection noted previously appeared to be under control, and the body temperature was normal this morning.

June 1 the refrigeration treatment had been discontinued forty-eight hours before in order to determine the natural status of the limb without treatment. This was followed by a recurrence of the active inflammation. Gangrene had developed in the three outer toes, and the general body temperature had risen to 102.2 F. We could not tell whether the infection had been fully controlled, and treatment was stopped as a test measure. The treatment was to be resumed and as soon as the infection was under control a midthigh amputation was to be done. It appeared that the virulence of the infection was so intense that it was controlled only during the exposure of the limb to the low temperature and recurred as soon as the normal room temperature obtained. For this reason it was felt that the proper procedure would be to obtain control of the infection and to amputate when that time had been reached.

June 7 it was observed that since resumption of the refrigeration treatment the body temperature had been normal. The general condition of the patient was now satisfactory and the local condition had improved very perceptibly. The gangrenous areas on the toes were beginning to separate. The other gangrenous areas on the limb were also beginning to separate, and the inflammation of the surounding skin had subsided to a considerable extent. If this improvement continued, it was felt that very possibly an amputation might be avoided and that the limb might be saved. The treatment was to be continued with this in view.

June 21 the foot was still covered with an extensive necrotic slough extending from all the toes half way up the dorsal and plantar surfaces. The two outer toes were completely necrotic. The other toes appeared viable and could be made to move voluntarily. The ulcerated areas of the leg and thigh were clean and were beginning to show small areas of newly formed islets of epithelium. The results so far were really remarkable and could be laid to the door of the continuous refrigeration treatment.

By July 28 the patient's right lower extremity had been exposed to refrigeration therapy for eighty-nine days continuously. With the exception of a small superficial slough on the inner aspect of the big toe and a slightly larger dry slough on the inner aspect of the ankle, the limb showed a complete absence of inflammation. The ulcerated areas were clean and were lined with abundant healthy granulations. Islands of new epithelium were scattered throughout the granulation tissue and new epithelium was growing in from the outer edges of the ulcerated areas.

In view of the unexpected reparative progress that the patient had made, it was decided to discontinue the refrigeration treatment, because it now seemed to be perfectly safe to do so without any fear of a lighting up of the infection. From now on to the time of her discharge from the hospital, healing progressed rapidly and the ulcerated areas, for which skin grafting had been planned when the infection had cleared up, showed such rapid epithelization that this procedure was held in abeyance until the full effect of the spontaneous healing could be seen.

On June 2, 1944 all the ulcerated areas were completely covered with newly formed epithelium. The heel was now also completely healed. The patient had an osteomyelitis of the tip of the heel with sequestrum formation. This was treated expectantly. The dead bone was extruded spontaneously, granulation tissue grew over the exposed bone and new epithelium in turn grew over the granulations. On October 16 the patient was transferred to the municipal hospital for chronic diseases for the treatment of her osteoarthritis.

COMMENT

This case report is published because it is, as far as I know, one in which refrigeration or low temperature treatment was employed for the longest period of time on record, with the successful preservation of a limb that under ordinary circumstances would have been amputated. It also shows the necessity of continuing with the treatment until the infection is fully and completely overcome.

1111 Madison Avenue.

Special Articles

The Committee on Standards of the Scientific Advisory Committee of the National Foundation for Infantile Paralysis recently reported to the Advisory Committee the results of a study made on the evaluation of different methods of treatment on the after-effects of poliomyelitis. The report is published in THE JOURNAL *with a view to indicating to physicians who are responsible for the care of such patients the standards that should prevail in drawing conclusions as to the results accomplished.*—ED.

EVALUATION OF THE RESULTS OF TREATMENT IN INFANTILE PARALYSIS

RUSTIN McINTOSH, M.D., CHAIRMAN; CARL E. BADGLEY, M.D.; RALPH K. GHORMLEY, M.D.; DON W. GUDAKUNST, M.D.; ANDREW C. IVY, MD.; HOWARD T. KARSNER, M.D.; ROGER I. LEE, M.D., AND HENRY R. VIETS, M.D.

In taking note of its assignment to set up standards by which to evaluate the end results of the different methods of treatment of the after-effects of poliomyelitis, the Committee first made an effort to define the boundaries of its task.

In the present state of our understanding of poliomyelitis the uncertainty of diagnosis is well recognized, and it is a matter of common knowledge that any large series of cases, whether they were gathered during an epidemic or in interepidemic times, may reasonably be supposed to include examples of other diseases. The first requisite of evaluation, then, accuracy of diagnosis, is approachable but not ideally attainable.

A second requisite for the fair comparison of two forms of treatment is equal sampling of cases. In this respect poliomyelitis affords unusual difficulty. The expression of the infection varies in any epidemic from negligible or even undetectable symptoms in one patient to a rapidly fatal issue in another. A patient who is totally incapacitated at the height of his infection may recover so rapidly that within a few weeks no appreciable residuum persists. Injustice is done when one investigator, including in his series a number of early cases, claims credit for his results when compared with those of another investigator whose series comprises only cases showing residual paralysis two weeks or more after onset. In selecting clinical material for the evaluation of many of the manifestations of poliomyelitis it appears necessary to include, in both the study and the control groups, cases of all types—not only those with residual paralysis or deformity, but also those in which no muscle weakness is detected.

Another aspect of the problem of sampling has to do with controls. If a particular method of treatment has received favorable notice in the public press and in radio broadcasts, failure to apply this method may arouse vigorous protest from patients or their parents. It then becomes difficult, if not impossible, to explore new methods by impartial comparison even though, in the light of our present knowledge, the variability in residual after-effects is governed to a greater extent by such factors as the age of the patient, the inherent character of the epidemic and other imponderables than by any therapeutic agent or practice which has thus far been put into our hands. Consequently, many of the claims advanced for the value of this or that therapeutic agent actually rest on evidence which fails to pass impartial examination.

On this question of controls, then, the Committee desires to put itself on record as being strongly in favor of the adoption in the field of the alternate case method, particularly the alternate paired case method, with age, severity of the attack and extent of paralysis being taken into account whenever any method of treatment is to be appraised.

A broad concept of the evaluation of therapeutics in poliomyelitis must take account of all the sequels—physical, psychic and social—and treatment should be directed at all of these disorders; but, for comparison of the effects of different forms of treatment, paralysis and deformities are selected for study because they are subject to objective measurement. The Committee strongly urges that an objective assessment of muscle strength be obtained in each case studied at the earliest period in the course of the disease at which such an examination can be carried out with reliable accuracy and without detriment to the patient.

The Committee recognizes the desirability of attaining quantitative measurement in the setting up of standards. The problem, however, is not a simple one. The use of any dynamometer, even of a relatively simple device like Lovett's spring balance, demands cooperation from the patient, implies a constancy of the patient's attention and effort which is not always attainable, and is believed to be beyond the range of technical competence of all except those who have devoted considerable time to the actual application of such apparatus, whether they be technicians or physicians. Moreover, satisfactory standards of reference for different muscles at different patient ages and for different patient backgrounds in relation to nutrition, innate muscle strength, previous illness and so on are not available, and the error involved in the use of the contralateral member in the individual patient is only too obvious. While fully recognizing the desirability of perfecting methods of quantitative measurement of muscle function as a research project, the Committee believes that broad application of some such method as the spring balance technic will cloud the issue by implying an accuracy which does not exist.

It is therefore recommended that emphasis be placed on standardization of a scheme of muscle evaluation which can be widely applied by adequately trained physical therapy technicians, by orthopedists or by any physician willing to take the necessary training in the technic of the test. For the purpose of recording residual paralysis, common usage has demonstrated the resistance tests with and against gravity to be the most practicable. There is unanimity of use but diversity of nomenclature. The following terms are recommended as a standard to produce uniformity, and the following symbols are advised as a standard unit expression of muscle strength:

5 = N = Normal	=	No apparent deficiency.
4 = G = Good	=	Approximates normal but fatigues more readily.
3 = F = Fair	=	Where part can perform function against gravity but is definitely weak.
2 = P = Poor	=	Where muscle is so weakened that it cannot perform its function against gravity but with removal of gravity can function.
1 = T = Trace	=	Where there is slight contractility of the muscle.
0 = O = Zero	=	No evidence of contractility of muscle fibers.

Of these alternative symbols, the ciphers are held preferable to the initial letters for purposes of record because they are less subject to error in reading if the records are to be pooled for analysis.

The Committee has examined a number of record forms, or so-called muscle charts, in current use in different parts of the country and is still working on the design of a form which combines the advantages of all those studied. When this is completed, which is expected in the near future, the Committee proposes to submit its record form to the Committee on Publications with the recommendation that copies be made available for distribution through the Foundation. In this way it is believed that active interest in objective evaluation of the patient's status will be fostered and that comparison of groups of patients treated by different methods will be greatly facilitated.

The Committee gave some thought to that portion of its assignment which might be held to include the devising of new methods and technics of assessment of the status of a patient who exhibits some of the after-effects of poliomyelitis. It was generally agreed that so-called "stimulation of research" on the part of committees is liable to be sterile, that the needs are well recognized by all competent investigators in the field, and that it rests in the nature of things that in the course of time, as new methods of mensuration become available, these will be tested out experimentally on patients with poliomyelitis with a view to their more general application. As a matter of record, the accompanying list is appended of various methods of assay which deserve further consideration in any intensive effort directed at improving the evaluation of a patient's status:

Methods of Assay

Loss of normal neuromuscular function	Electromyogram Chronaxia Response to measured intensity and frequency of sinusoidal current Response to galvanic and faradic stimulation
Incompetence of specific muscles	Vital capacity measurement (intercostals) Fluoroscopic evaluation of respiration (diaphragm) Cystometric measurement (disturbance of bladder function)
Atrophy of muscle	Volumetric measurement by oncometer Soft tissue roentgenograms Photography against a measured grid background
Atrophy of bone	Roentgenographic mensuration of length and thickness Roentgenographic measurement of density of calcification Photography
Emotional status with respect to the disease	Psychiatric evaluation

From a historical point of view, most of the contentions over the relative effectiveness of one or another mode of therapy have dealt with the manifestations evident at a comparatively late stage of viral invasion, at a time when the infectious agent either is firmly established or has already inflicted irreparable damage, whereas there is no argument whatever over the disappointing results of all efforts to kill the virus within the host or by artificial means to neutralize its attack. When a practicable and truly effective virucide at last becomes available to clinical medicine, as we may confidently hope will come to pass, then all efforts to set up standards for the evaluation of treatment of after-effects may be expected to lose their point. With sulfadiazine and penicillin in the current armamentarium for the treatment of pneumococcic pneumonia one no longer hears any debate over the value of digitalis or whisky for patients with lobar consolidation.

THE COORDINATION OF MEDICAL AND BLUE CROSS PLANS

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Voluntary prepayment plans are making a worthwhile contribution to health security and have important potentialities. Beginning in 1932 hospital service plans have developed to the point where there are seventy-eight of such plans in the United States, with an enrolment of over 16,000,000 persons. Before the end of the year it is likely that plans will exist in all states. At the present time in three states over 30 per cent of the population of the state is enrolled and in seven states between 20 and 30 per cent of the population are enrolled. In a number of urban centers—Cleveland, Ohio, Rochester, N. Y., Rockford, Ill.—to name a few, over 50 per cent of the population belong to the hospital service plan.

At the present time there are in operation nineteen medical service plans sponsored by local and state medical societies. These plans have a total enrolment of over 1,800,000. New plans are rapidly being organized in every section of the country, and enrolment in already existing plans is beginning to increase rapidly. Thus far almost all the medical service plans are limited to surgical and obstetric service, and, when these are not provided by the hospital plan, to x-ray, laboratory and anesthesia service in connection with hospitalized cases. The proper actuarial basis for these limited services has been established or is being rapidly established. A workable pattern of administrative technics seems to be in process of crystallizing. In short, it looks as if medical service plans are at about the same stage of development as hospital plans were in 1936 or 1937 and that a rapid growth of these plans paralleling the development of hospital plans is to be expected.

One of the most important problems which must be solved if medical and hospital plans are to achieve their full potentialities is that of their proper coordination with each other. On this point there are offered the following observations based on a survey of prepayment plans which we have been conducting for the U. S. Public Health Service. In the course of that survey thirty-eight of the Blue Cross and all but two of the medical plans were visited.

RELATIONSHIPS BETWEEN MEDICAL AND HOSPITAL PLANS

In general, there are four types of relationships to be found between the medical and hospital plans.

A. *No coordination.* Each plan is separate and distinct and there is no coordination of their activities.

B. *Separate corporations, separate executive directors and to some extent separate administrative staffs.* Each plan performs certain functions for itself, notably approval of claims, payment of hospitals or physicians and maintenance of relations with hospitals or physicians. One plan contracts to perform certain other functions, usually enrolment, billing and record keeping, for the other, or there is joint control of these functions.

C. *Separate corporations and separate boards of directors but a single executive director with one administrative staff.* The medical plan is administered by the

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Blue Cross plan. The medical plan has no employees of its own; the two plans are separate only in their policy making bodies.

D. *One corporation.* One organization with a single board of directors offers both hospital and medical service.[1]

The accompanying table lists the present medical plans, shows their present membership, last year's growth, the ratio of medical plan members to Blue Cross plan members, the percentage of the population of the area enrolled in the medical plan, and the type of relationship with the Blue Cross plan or plans in its area.

The table shows that, of the nineteen plans,[2] two plans with a total of 308,000 members have arrangement A, no coordination with the Blue Cross plans in their area. California Physicians' Service has arrangement A with the Blue Cross plans in the northern part of the state and arrangement B with the Blue Cross plan in the southern part of the state. Arrangement B is held by three plans, Michigan, New Jersey and Pennsylvania, with a total of 822,000 members. Nine plans with a total membership of 327,000 have arrangement C and four plans with a membership of 135,000 have arrangement D. It is noteworthy that all the plans started in the last two years have either arrangement C or arrangement D.

The common goal of the Blue Cross and the voluntary medical plans should be to give protection against the costs of illness to as many people as possible. Which of the four possible relationships will facilitate the achievement of this goal most quickly and effectively?

Medical Service Plans: Year Started, Present Membership, 1944 Growth, Ratio of Members to Blue Cross Plan Members, Percentage of Population Covered and Type of Arrangement with Blue Cross Plan

Name of Plan	Area Served	Year Started	Membership 1/1/45	Growth in 1944	Ratio of Medical Plan Members to Blue Cross Plan Members	Percentage of Area's Population Covered	Type of Arrangement
Oregon Physicians' Service and affiliated county bureaus	Oregon	1929	108,000	[1]	257.0[3]	9.2	A
County Medical Service Bureaus	Washington	1933	200,000[2]	[1]	330.0[3]	10.5	A
California Physicians' Service	California	1939	130,000	40,000	56.0[3]	1.6	A-B
Medical and Surgical Care	Utica, N. Y.	1939	30,277	8,384	29.6	5.0	C
Michigan Medical Service	Michigan	1940	768,755	160,100	61.6	14.3	B
Western New York Medical Plan	Buffalo	1940	37,920	17,831	10.2	3.4	C
Medical Service Association [4]	North Carolina	1940	30,624	30,000	60.8	1.9	C
Hospital Care Association [4]	North Carolina	1943[4]	33,236				D
Medical Service Association of Pennsylvania	Western Pennsylvania	1940	22,000[2]	13,283	3.0[2]	0.6[2]	B
Hospital Savings Association	North Carolina	1941	63,717	24,346	27.3	1.9[5]	D
United Medical Service	New York City	1942	77,412	39,851	4.4	0.9	C
Massachusettts Medical Service	Massachusetts	1942	75,770	53,604	7.9	1.9	C
Colorado Medical Service	Colorado	1942	45,136	34,516	16.6	4.2	C
Medical-Surgical Plan of New Jersey	New Jersey	1942	31,213	15,198	4.8	0.8	B
Group Hospital Service	Delaware	1943	36,326	24,318	37.4	13.3	D
Surgical Care, Inc.	Kansas City	1943	27,636	21,382	24.9	4.1	C
New Hampshire Physician Service	New Hampshire	1944	2,000[2]	2,000	[6]	[6]	C
Huntington Hospital Service	Huntington, W. Va.	1944	2,000[2]	2,000	[6]	[6]	D
Nebraska Surgical Plan	Nebraska	1944	500[2]	500	[6]	[6]	C

1. Not known; probably less than 15,000.
2. Approximate.
3. The Blue Cross plan in Washington has 60,000 members, that in Oregon 42,000. These are different persons than those enrolled in the medical plans; and the same is true of part of the enrolment in the California Blue Cross Plans. Elsewhere the members of the medical and Blue Cross plans are the same persons and the other figures in this column show the percentage of Blue Cross members who are enrolled in the medical plan.
4. Both plans are administered by Hospital Care Association. Membership is gradually being transferred from Medical Service Association to Hospital Care Association.
5. There are two statewide Blue Cross plans in North Carolina. Their medical plans have enrolled 3.8 per cent of the state's population.
6. Plan but recently started.

1. These relationships are discussed by Mr. Lester H. Perry in an article entitled The Coordination of Medical and Blue Cross Plans, THE JOURNAL, Feb. 10, 1945, p. 321. We have arrived at different conclusions from those set forth by Mr. Perry.
2. The numerous county medical societies plans in Washington are here considered as if they were one plan. Likewise Oregon Physicians' Service and its affiliated county bureaus are also considered as if they were one plan.

COMPARISON OF THE FOUR RELATIONSHIPS

A. This relationship leads to competition and conflict. In Washington and Oregon the county medical societies have long had their medical service bureaus offering complete medical care, including hospitalization, to employed persons. The hospitals were dissatisfied with these plans because they had no share in their control and because little progress in providing hospital care on a prepayment basis to all the people of the state was being made. Accordingly they started Blue Cross plans. In Washington and Oregon the medical plans and the Blue Cross plans were (when visited in January 1945) competing with each other, although there were elements on both sides who recognized the drawbacks of this situation and were endeavoring to find a basis for cooperation.

In northern California, California Physicians' Service and the Blue Cross plans formerly cooperated. That cooperation broke down and competition ensued. California Physicians' Service developed its own hospitalization, and the two Blue Cross plans developed their own surgical indemnity plans.[3]

In short, arrangement A is thoroughly bad. The medical plan is forced in self defense to develop its own hospitalization insurance, and the hospital plan must offer surgical coverage. Hence the situation develops into two plans, one sponsored by the medical profession and the other by the hospitals, competing with each other. Competition is a good American institution in its place. However, these plans are really nonprofit community services. Prestige and public support are attracted to them because they are sponsored by the medical profession and the hospitals. When the plans compete with each other that prestige and

3. The Oakland Blue Cross plan has sold its surgical rider to 30,000 of its 96,000 members, and the Sacramento plan has sold its surgical rider to 10,000 of its 28,000 members.

public support is dissipated. Nothing could be more detrimental to the growth of voluntary plans than the present situation on the West Coast. The potential market for prepayment is enormous, but little headway can be made until the medical and hospital plans get together.

B. This is an advance over A because it at least brings the two plans together and avoids competition and strife. A disadvantage may be that the cord binding the two plans is tenuous and may break down, leading back to situation A.

When two plans cooperate, certain activities must be performed jointly or by one plan for the other. Enrolment, collection of subscription charges, maintenance of records showing subscriber eligibility for care, publicity and public relations are of this character. There must be joint use of certain office facilities. Certain activities can be performed by each plan for itself, notably approval of claims, payment of hospitals or physicians and maintenance of relations with hospitals or physicians. (Thus, in Michigan and New Jersey the Blue Cross plans handle enrolment, collection of subscription charges and maintenance of subscriber records for the medical plans. The latter approve medical claims, pay physicians and maintain relations with the profession. In southern California there is joint maintenance and joint control of the sales force. The Blue Cross plan maintains subscriber records for both plans.)

Furthermore there must be coordination of the two plans with respect to major policies. In order not to confuse the public and impede acceptance of the two plans, enrolment regulations must be similar, the provisions as to types of cases covered or not covered, waiting periods, and so on, must be alike. Any change in the rates or benefits of the one which renders it more or less attractive will affect the sales of the other which is coupled with it.

One difficulty with B is that, in effect, it sets up two masters in the same household. The director of the medical plan may have his ideas as to how enrolment should be conducted and on the choice of the man or men to do it. The two directors may have conflicting ideas on the best methods of keeping subscriber records, on publicity and public relations. Each director, in time, will tend to have his own ideas as to how the other plan should be run. If either plan is forced to raise rates or to cut benefits in order to make ends meet, this will slow down sales of the other, and the director of the other plan will have his own ideas on how the situation could have been avoided or should be handled. In short, the two plans are really joint undertakings. The public which pays its dues to one organization thinks of them as one and cannot be persuaded differently. The success of the one affects the success of the other. Yet there are two administrators, and this always makes for trouble.

There are also questions of prestige. If the hospital plan is well developed by the time the medical plan is offered, the two plans together will be sold as Blue Cross, and the medical plan and its director will not like this. If the Blue Cross does the selling for the medical plan, it is the Blue Cross representative who meets potential subscribers. His main loyalty is to that organization. This is true not only of the field men but of all Blue Cross employees who give some of their time to the medical plan. The hospital plan may be pushed, the medical plan considered an extra. The Blue Cross director has to sell a service concerning which he has no say.

The director of the medical plan meets with the board of directors of the medical plan, and the director of the hospital plan meets with his board. Neither board has first hand knowledge of the problems of the other plan with which it is coupled. Conflicts between the two boards on joint matters may not be easily resolved. Further, if friction between the two directors reaches the point where neither will give way to the other, then each board will tend to back up its own director.

An advantage of B is that responsibility for the success of the medical plan is concentrated on one person who gives it his whole time and attention. The medical plan may be a side line with the hospital plan director, but the medical plan director is there to see that its problems receive due consideration.

Arrangement B is the one possessed by the Michigan plan which has more members than the combined membership of all the other plans which are cooperating with Blue Cross. It has worked here owing in large measure to the personalities of the men involved. That Michigan Medical Service has so many members demonstrates not so much the superiority of B as that it was coupled with a Blue Cross plan which had a meteoric rise and that from the beginning the automobile industry with its great groups of employees demanded joint hospitalization and medical coverage. It is significant that many of those connected with Michigan Medical Service and Michigan Hospital Service believe that the two should be unified.

We think plan B is not likely to be successful in many instances. It is apt to succeed in spite of, not because of, its administrative soundness. It contains the seeds of trouble and is likely to go backward to A or forward to C.

C. C is an improvement over B. From the director down, there is one single administration. There is one head within the organization. The difficulties of C are that it is not the most convenient method of securing coordination between the boards of the two plans and that the director is in a sense serving two masters and may feel less responsibility to the one than to the other.

On many matters, as we have seen, there must be joint determination of policy between the two plans. What size groups should be enrolled? What percentage of participation within a group should be required? Should individuals be enrolled? On what basis? Should rural enrolment be undertaken? Should there be resort to advertising? What types of publicity should be undertaken? Should higher rates be charged to individuals who drop out of groups? The one board must agree to any change of rates or benefits desired by the other. On all these matters of joint policy or interest, the executive director must go back and forth between the two boards. One board decides on a certain matter. The other board considers and suggests a different solution. The first board must reconsider. It is a waste of time on the part of all concerned. Joint meetings of the two boards and interlocking of some of the personnel will help to cut down this waste.

Under arrangement C the executive director of the two plans is apt to feel that he is really the employee of one or the other. Under most existing plans with arrangement C the director draws all his compensation from the hospital plan. Under a few he receives an extra $1,000 or $2,000 from the medical plan. This

situation encourages the executive director to feel that his allegiance is wholly or mainly to the hospital plan, and, as in B, possibly to think of the medical plan as a side line.

The medical profession may think that C is preferable to D, one board for both plans, because under C it has full control of the medical plan. Actually this is illusory. Where so many matters are of concern to both plans, then in effect any decision of one board must be approved by the other. The board of one plan must assent to any major decision of the other plan board. This means that one board shares control with the other. The separation of the two boards simply makes it more difficult for joint decisions to be arrived at.

Under C the medical plan has a head but no body. An arrangement under which one plan entrusts its entire fortunes, all its administration, to another plan probably cannot long endure. We feel that the solution, when both groups are ready for it, is to go on to D.

One sees the difficulties of C in clearer perspective if one projects thought to the time when dentistry and nursing are offered on a prepayment basis. Will there be a dental board and a nursing board with the director of the hospital plan serving as executive for all? Obviously, merger is the answer.

D. Arrangement D seems the common sense arrangement when the two groups are ready for it. It is the one to which the plans probably will ultimately come. Under this arrangement the hospital plan, as such, ceases to exist; the medical plan, as such, ceases to exist. Instead there is a combined medical and hospital plan—a health service plan.

Under this arrangement there is one single corporation with one board and one director. There is complete coordination of medical and hospital prepayment because they are unified. One single organization gives maximum economy, single authority, maximum public acceptance and equal responsibility on the part of the plan's employees to all services which they render. The director of this one health plan would feel equal responsibility to both hospital and medical prepayment. The board of directors should have equal representation from the hospitals and the medical profession. For example, the Chapel Hill, N. C., plan has a board of twelve members, four elected by the state medical society, four by the state hospital association and four public representatives. It goes without saying that the name of organization should reflect its makeup and purpose. It should not be —— Hospital Service but —— Health Service.

The Blue Cross symbol should be retained because of its public acceptance, but any device within the cross should symbolize health service in general.

An important advantage of arrangement D is that it facilitates solution of the vexing problems of the inclusion of radiologic and pathologic services and of anesthesia and physical therapy, when performed by physicians, in hospital and medical service plans. These services are medical services, yet the charges for them often or usually appear on the hospital bill and are therefore thought by the public to be hospital services. Physicians in these specialties quite properly desire that these services shall be included in the medical rather than in the hospital plan. Yet until the medical plan has as extensive a membership as the hospital plan the inclusion of these services in the medical plan and their exclusion from the hospital plan has the disadvantage for the subscribing public that a lesser portion of the hospital bill is covered. Furthermore, even if enrolment in both plans is coextensive, and the aforementioned services are offered under the medical plan, administratively it is simpler, where the charges for the mentioned services appear on the hospital bill, for the hospital plan to pay the full hospital bill and to debit the medical plan for its expenses on behalf of these services, rather than for one organization to pay part of the bill and the other organization to pay the other part. All of these difficulties are avoided if Blue Cross and medical plans are transmuted into a joint hospital and medical plan—a health service plan—with a changed name and changed board of directors to give proportionate representation to the two groups.

There are several difficulties in the way of ready acceptance of arrangement D. One difficulty is that in some places neither the medical profession nor the hospitals are ready for it. They are too afraid of each other to get at such close quarters. (In discussing this proposal one hears the doctors say they are against it because the hospitals would control, and the hospitals say they are against it because the doctors would control.)

Another difficulty is that a single combined plan means, in effect, a single reserve to back up both hospital and medical contracts. In many places the hospitals would be unwilling to underwrite the medical contract and vice versa. The hospital plan may have substantial reserves and be on a sound and tested financial basis. Medical plans are as yet on more of an experimental basis and, until the medical plans are also on a sound and tested financial basis and have some reserves, unification may not be desired.

A third difficulty is that the laws of a number of states say that medical and hospital prepayment must be provided by separate corporations. It would seem, however, that legislatures would in most states be responsive to recommendations of the medical profession and the hospitals and that laws could be changed. It is also possible in some instances to have two corporations but have the same board members on each.

A fourth difficulty is that the central organization of Blue Cross plans, the Hospital Service Plan Commission, was developed through and is affiliated solely with the American Hospital Association. If local Blue Cross plans are to be transmuted into joint medical and hospital plans, it is essential that the central organization of the plans should undergo the same transformation.

These difficulties can be easily removed if both the medical profession and the hospitals make up their minds to do so and face realistically the problems involved in the successful development of prepayment plans. Until these difficulties are removed, arrangement C is probably preferable.

CONCLUSIONS

Cooperation between medical and hospital plans is essential. This cooperation can be achieved under various arrangements, any one of which can function at least temporarily with success, depending on the stage of thinking of those who do the cooperating. Complete unification of hospital and medical plans into Blue Cross Health Service Plans seems to provide the final and best solution. It represents the end of the road. But less forthright arrangements may not be without their temporary value.

Council on Pharmacy and Chemistry

REPORT OF THE COUNCIL

At the October 1943 meeting of the Council it was decided that reports should be made on (1) the status of prophylaxis by Hemophilus pertussis vaccine and (2) the status of passive immunization with human hyperimmune pertussis serum. A report on the current status of prophylaxis by Hemophilus Pertussis Vaccine appeared in THE JOURNAL, *Sept. 30, 1944, page 294. The following statement on the Status of Passive Immunization and Treatment by the Use of Human Hyperimmune Pertussis Serum has been adopted by the Council for publication.* AUSTIN SMITH, M.D., *Secretary.*

THE STATUS OF PASSIVE IMMUNIZATION AND TREATMENT IN PERTUSSIS

BY THE USE OF HUMAN HYPERIMMUNE SERUM

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Severe whooping cough in infants is one of the medical conditions before which the physician of today often feels completely inadequate. The incidence of this disease has dropped significantly during the past five years, but the mortality rate in children under 1 year of age continues to be very high. The statistics have been difficult to evaluate because many cases have not been reported, and in infants death is frequently caused by the complications of the disease rather than the actual disease itself. It has been estimated that about 25 per cent of the infants under 6 months of age who contract whooping cough succumb.[1] Active immunization cannot be applied directly to this highly susceptible group, since it is felt that the mechanisms for producing active immunity are not mature. It is obvious, therefore, that any specific method of prevention or treatment of whooping cough in this younger age group must consist of the administration of serum containing specific antibodies in large enough doses to combat existing infection.

The development and use of human hyperimmune pertussis serum has followed attempts at passive immunization and treatment by the use of whole blood, normal serum and convalescent serum, which have been tried with no particular success for a number of years.[2] A review of the literature covering this subject by Bradford[3] in 1935 concluded that the use of convalescent serum modified the disease if given before catarrhal symptoms appeared but was of doubtful aid when administered after the disease had become well established.

Jundell[4] in 1933 was the first to report the use of serum resulting from the inoculation of human beings with pertussis vaccine. Each of 5 whooping cough patients was treated with serum from one parent who had been immunized with pertussis vaccine. The immunization was begun as soon as exposure was discovered and consisted of two to three intramuscular injections at intervals of five to six days. The serum was collected on the fifth day after the second or third injection and was administered in three to four doses of 60 to 80 cc. every two to five days. This series was very small, but it was felt that the serum had been of some value.

In 1936 Kendrick[5] reported the preparation and use of "reinforced convalescent or hyperimmune" human serum in the prophylaxis of exposed infants. Adult donors with positive childhood histories of whooping cough were given a series of injections totaling 7 to 20 cc. of a suspension of 10 billion Hemophilus pertussis organisms per cubic centimeter. Each serum was positive for agglutinins and gave a very strong opsonic reaction. Serum was used in 10 to 20 cc. doses, given as soon as possible after exposure and, in addition, another dose of 10 cc. some days later. Of 11 infants injected before the onset of symptoms 9 escaped the disease, but it was felt that treatment in 6 cases after the onset of symptoms was not of benefit.

In 1937 McGuinness, Stokes and Mudd[6] reported the first results of the use of lyophiled hyperimmune whooping cough serum. This serum was used for prophylaxis in 12 children and for treatment in 15 others. Adult donors with a history of whooping cough in childhood were used. The donors were given one course of Sauer type vaccine every four months and were bled at the end of the first four months and at varying times thereafter. The serum was separated from the whole blood, rapidly frozen for storage, pooled, frozen and dried. After the first year of production of this serum the immunization schedule was changed to give three courses of three weekly injections totaling 90 billion organisms at four month intervals and to obtain serum samples at approximately one month after the third course. Agglutination titers were determined and, if found to be 1:1,280 or over, the donors were eligible for the serum pools. The results of this first small series suggested that this type of serum was of definite value in prophylaxis. It was felt that the number of treated patients was so small that the therapeutic effect could not be determined.

Katsampes, McGuinness and Bradford[7] in 1939 reported improvement in 18 of 22 children who were treated with the same hyperimmune human serum. Fifteen of these children were under 6 months of age. There were no deaths in this series of cases.

In 1939 Cohen and Lapin[8] produced a hyperimmune serum by giving donors 20 cc. of either Sauer's or Mishulow's vaccine over a six to eight week period. Serum was collected one or two weeks later. Following prophylactic use of this serum in 10 cc. doses for infants and 20 cc. doses for older children, 8 of 12 exposed infants, or 67 per cent, escaped the disease. At the same time following doses of at least 15 cc. for infants and 40 cc. for older children of convalescent

1. Lapin, J. H.: Whooping Cough, Springfield, Ill., Charles C Thomas, 1943, p. 17.
2. Paterson, D.; Bailey, R. H., and Waller, R. G.: Control of Whooping Cough with Serum and Vaccine, Lancet **2**: 361-364 (Aug. 17) 1935. Kereszturi, Camille; Hauptman, David, and Park, W. H.: Value of Convalescent Serum for the Prevention of Common Contagious Diseases of Children, Am. J. Dis. Child. **50**: 309-323 (Aug.) 1935. Meader, F. M.: Prophylaxis of Whooping Cough, ibid. **53**: 760-767 (March) 1937. Meader, F. M., in Round Table Discussion on Convalescent Serum Therapy: Convalescent Serum in Whooping Cough, in Report of Proceedings of Eighth Annual Meeting of the American Academy of Pediatrics, J. Pediat. **14**: 264-267, 1939. Cohen and Lapin.[8]
3. Bradford, W. L.: The Use of Convalescent Blood in Whooping Cough, with a Review of the Literature, Am. J. Dis. Child. **50**: 918-928 (Oct.) 1935.
4. Jundell, I.: Has Specific Serum of Adults Any Value as a Remedy Against Whooping Cough? Acta. pædiat. **15**: 1-11, 1933.
5. Kendrick, Pearl, in Round Table Discussion on Prophylaxis and Treatment of Whooping Cough: A Note on the Use of Reinforced Convalescent or Hyperimmune Serum for Passive Immunization of Infants Exposed to Pertussis, in Report of the Proceedings of the Sixth Annual Meeting of the Academy of Pediatrics, J. Pediat. **9**: 118-120 (May) 1936.
6. McGuinness, A. C.; Stokes, J., Jr., and Mudd, S.: The Clinical Uses of Human Serums Preserved by the Lyophile Process, J. Clin. Investigation **16**: 185-196 (March) 1937.
7. Katsampes, Chris; McGuinness, A. C., and Bradford, W. L.: Effect of Hyperimmune Human Serum (Lyophile) on the Humoral Antibody Titer in Pertussis, Am. J. Dis. Child. **58**: 1234-1239 (Dec.) 1939.
8. Cohen, P., and Lapin, J. H.: Prophylaxis Against Whooping Cough in Exposed Children, with Special Reference to Serum, J. Pediat. **15**: 78-85 (July) 1939.

serum 28 of 33 (85 per cent) exposed children escaped pertussis. It will be noted that a larger dose of convalescent than of hyperimmune serum was used.

Cohen, Weichsel and Lapin[9] in 1940 used hyperimmune and convalescent serum in doses of 5 to 40 cc. in treatment. The former was used in 12 cases and the latter in 36 cases. About 50 per cent of the patients were under 1 year of age. The authors concluded that, if given early enough and in large enough doses, hyperimmune serum could be of benefit in some cases and that striking results could be obtained in others. These workers felt that this serum was of definite value in severe cases. The donors for this serum had received 170 to 200 billion organisms over a six week period and were bled two weeks after the last injection.

McGuinness, Bradford and Armstrong[10] in 1940 found that when lyophiled hyperimmune human serum was used in doses of 10 cc. for the average child and 20 cc. for the very young and intimately exposed children, and if given before the catarrhal stage, 78.3 per cent of 65 exposed children escaped the disease. Of the 18 cases in which whooping cough developed in this group, 13.3 per cent were very mild, 4.8 per cent were mild and 3.7 per cent were moderate. At this time a study of the use of this serum for treatment in a group of 100 cases was reported. The total dosage was from 40 to 50 cc. given in two or three doses at two day intervals. The results were recorded as excellent 32, good 31, moderate 20, questionable 14 and deaths 3. The deaths all occurred in infants under 2 months of age with severe bronchopneumonia, and not 1 of these infants had received a full dose of serum. Attention was called to the fact that the expected mortality rate for the age group under 6 months is 25 per cent. Fifty-one of the 100 cases were in this age group. It was observed in this series that the best results were obtained when the therapy was begun in the first two weeks of the disease.

Flosdorf, McGuinness, Kimball and Armstrong[11] in 1941 discussed the methods of preparation and assay of hyperimmune human serum. A comparative study of two schedules of immunization in the production of serum of high agglutinative titer was made. One group of donors was given a standard series of a total of 7 cc. of Sauer's single strength vaccine (10 billion organisms per cubic centimeter) over a period of three weeks. This was repeated at three to four month intervals for three or four times. A second group was given the standard series and then monthly injections of 2 cc. of vaccine. Titrations for agglutinins were made at the end of one or two weeks after the initial course of vaccine in each group, and donors whose serum titer was not as high as 1:1,000 or 1:1,500 were rejected. Bleedings of 200 to 400 cc. of blood were made at monthly intervals and the titers determined. It was recommended that the final titer of the pools be 1:1,280 or preferably 1:2,560. It was found that the second schedule was not only just as effective in raising the agglutinin titer but that there was less variation in the titers of this group when followed over a period of a year. Therefore this procedure appeared to be preferable.

Frank, Patton and Hamilton[12] in 1942 reported a mortality rate of 20 per cent in a series of 30 consecutive cases of whooping cough with bronchopneumonia treated with hyperimmune serum. No statement of the method of preparation or agglutinative titer of this serum was made. These authors reported a mortality rate of only 4 per cent in 77 consecutive cases treated with sulfathiazole. The conclusions drawn were that the serum had no specific effect but was "good supportive therapy." The doses of serum given in this study were below the minimum doses recommended by McGuinness.

In 1944 McGuinness, Armstrong and Felton[13] presented the results of further studies in prophylaxis and treatment by the use of lyophiled hyperimmune human pertussis serum. A change in the immunization schedule was reported. Since 1942 the Philadelphia Serum Exchange has used intermediate strength Sauer vaccine (15 billion organisms per cubic centimeter) in four weekly injections with a total of 7 cc. One month after the first course a sample of the donor's serum is titrated for agglutinins and if a titer of 1:2,560 has been reached the donor is eligible for the serum pool. At monthly intervals the titer is determined and an injection of 2 cc. of vaccine is given. The average pools of serum obtained by this schedule of vaccination have a titer of 1:2,560, as compared to 1:1,280 previously obtained with the use of single strength vaccine and the original schedule of injections. The results of the use of this serum in 308 exposed susceptible infants and children showed that 78.6 per cent did not contract whooping cough. Of 137 children continuously exposed 67.9 per cent escaped, in contrast to the expected 10 to 20 per cent in unprotected children. In this series it was observed that the duration of exposure was a very important factor since 44 (66.6 per cent) of the cases developed after continuous intimate exposure, 19 (28.8 per cent) after short intimate exposure and 3 (4.5 per cent) after casual exposure. The importance of adequate dosage was stressed by the authors, who recommend the administration of two injections of 20 cc. each from three to five days apart for all children who are subject to continuous exposure. The serum was given either intramuscularly or intravenously. It was observed that the best results were obtained when the serum was given in the first two weeks after exposure. It has been suggested that children who are exposed for periods extending beyond three weeks after the second prophylactic dose of serum has been given should receive an additional dose to maintain the antibody level over this long period.

The aforementioned authors reported the use of lyophiled hyperimmune serum after the onset of paroxysms in 442 patients with whooping cough; 236 of the patients were under 1 year of age and 176 were in the first six months of life. The results were classified as follows: excellent or good results 70.2 per cent, moderate results 19.9 per cent, poor results 8.6 per cent, and deaths 1.3 per cent. These results are consistent with the previous report on the first 100 cases treated. The minimum dosage recommended for treatment of older children or severely ill infants at this time is three 20 cc. injections given forty-eight hours

9. Cohen, P.; Weichsel, M., and Lapin, J. H.: A Comparative Study of Therapeutic Agents in the Treatment of Pertussis, J. Pediat. **16:** 30-35 (Jan.) 1940.
10. McGuinness, A. C.; Bradford, W. L., and Armstrong, J. G.: The Production and Use of Hyperimmune Human Whooping Cough Serum, J. Pediat. **16:** 21-28 (Jan.) 1940.
11. Flosdorf, E. W.; McGuinness, A. C.; Kimball, A. C., and Armstrong, J. G.: Studies in H. pertussis. Preparation and Assay of Hyperimmune Human Serum, J. Pediat. **19:** 638-643 (Nov.) 1941.
12. Frank, W. P.; Patton, E. F., and Hamilton, P. M.: Treatment of Whooping Cough Bronchopneumonia, J. Pediat. **20:** 720-722 (June) 1942.
13. McGuinness, A. C.; Armstrong, J. G., and Felton, H. M.: Hyperimmune Whooping Cough Serum: Further Studies, J. Pediat. **24:** 249-258 (March) 1944.

apart. Occasionally a fourth dose may be required some time later. The intravenous route is suggested for all critically ill children, although most of the serum has been given intramuscularly. In severe cases several intravenous doses of from 50 to 100 cc. may be necessary. The total number of deaths in the group reported was six. These patients were all moribund and none of them received the minimum recommended dosage of serum. Five of the deaths were in the group under 6 months of age, making a fatality rate of 2.8 per cent for this group, as compared with the expected rate of 25 per cent in untreated infants. Fifty-five of the patients in the study were known to have bronchopneumonia. At the time treatment was begun, 39 of these patients were given the minimum dosage of serum and no sulfonamide therapy. There were no deaths, and 25, or 64 per cent of the cases had excellent or good results. The percentage of children showing little or no response was somewhat higher among the older children, since they received proportionately less serum than the smaller children.

Scheinblum and Bullowa [14] in 1944 reported results of the use of lyophiled hyperimmune pertussis serum in treatment of 23 critically ill patients at the Willard Parker Hospital; 52.1 per cent of the patients responded with good results, 13.3 per cent with questionable results, and in 8.6 per cent of the cases the serum was ineffectual. It was observed in this study also that the best results were obtained in the younger children. There were 12 infants between 1 and 3 months of age, 75 per cent of whom responded with good or moderate results, and there were no deaths. There were 2 moribund patients in the study, 1 receiving only 20 cc. of serum intramuscularly and the other 40 cc. of serum intravenously before death. It was observed that there were 2 patients treated as late as the eighth and ninth week of the disease who responded with good results. In 11 of the 23 patients pneumonia developed as a complication, and in these chemotherapy in the form of sulfadiazine was used in addition to serum, both prior to and simultaneously with the serum. It was found that, while the temperatures fell following chemotherapy, the general condition of the patient remained unchanged until serum was given.

COMMENT

Until very recently there has been no therapeutic measure which has been able to influence greatly the clinical course of whooping cough, particularly in young infants. The development of the specific serum which is now called hyperimmune serum has been under way for less than ten years. The observations made thus far have been on small groups and without untreated control cases. The efficiency of hyperimmune human serum has been indicated only by the dramatic reduction of the fatality rate, especially in infants in the first six months of life.

In the prevention and treatment of whooping cough, as in other infectious diseases, there is advantage in using human serum, if possible, rather than animal serum in order to avoid sensitivity, especially in known allergic individuals. Human hyperimmune pertussis serum has not been observed to cause any severe local or general reaction. However, the preparation and use of immune rabbit serum has been tried by a number of investigators who feel that it may be used safely.

Bradford, Scherp and Brooks [15] used globulin fraction of antipertussis rabbit serum for prophylaxis in a group of 20 infants with familial exposure. Thirteen (65 per cent) were completely protected. Five of the 7 cases were mild and 2 were typical. One dose of 2 to 10 cc. of serum was used. It was stated that auxiliary tests of the serum seemed to indicate that the protective action was chiefly antibacterial rather than antitoxic. Bradford, Brooks and Katsampes [16] found either immune rabbit globulin, pertussis antitoxin or sulfadiazine alone to protect mice against experimental murine pertussis. However, they did not always obtain reproducible results, as was the case when sulfadiazine was combined with either of the two rabbit serums.

Some workers feel that the toxin is more important in pertussis infection than has been generally recognized and that therefore antitoxin should be used in prophylaxis and treatment. Strean, Lapointe and Dechene [17] and Lapointe and Strean [18] reported the use of rabbit antiendotoxic or antiendotoxic plus antibacterial serum for passive immunity in contacts and in treatment of the disease. They found that the antiendotoxin alone inhibits the disease or produces an aborted attack in most cases but feel that use of the combined serum is preferable in order to stimulate phagocytosis as well as to neutralize the toxin. Bullowa and Alterman [19] found that rabbit antitoxin prevents the disease even in continuous exposure if given early enough but is of little value in established cases.

Evidence from certain laboratory experiments with hyperimmune human serum seems to indicate that the protective action is antibacterial, although a small amount of antitoxin has been demonstrated. This antitoxin is probably the result of intensive repeated immunization with whole bacterial vaccine which has been shown to contain minute amounts of toxin.

The dosage schedule recommended for the hyperimmune serum was first made arbitrarily. It is now felt that in severe cases larger doses of serum than originally recommended should be used and that the intravenous route should be employed whenever possible. The importance of an additional dose of serum for prophylaxis in cases under long term exposure is stressed. The use of lyophiled serum facilitates administration and also insures against decreased antibody content on storage.

The National Institute of Health has authorized the preparation and distribution of hyperimmune pertussis serum. This agency recognizes no standard method of assay at this time. For three years the serum produced at the Philadelphia Serum Exchange has been tested by the agglutination technic described by Flosdorf, McGuinness, Kimball and Armstrong.[11] Hyperimmune pertussis serum also has been prepared by several other human serum centers in this country.

The studies reviewed in the paper indicate that in treatment it is possible to lower the mortality rate of whooping cough decidedly by the use of hyperimmune human pertussis serum given in adequate amounts. Significant passive protection has been obtained when the recommended dosage has been used.

14. Scheinblum, I. E., and Bullowa, J. G. M.: The Treatment of Pertussis with Lyophile Hyperimmune Human Pertussis Serum, J. Pediat. **25**: 49-55 (July) 1944.

15. Bradford, W. L.; Scherp, H. W., and Brooks, A. M.: Effect of Refined Antipertussis Rabbit Serum on the Humoral Antibody Titer in Pertussis, Am. J. Dis. Child. **62**: 492-498 (Sept.) 1941.

16. Bradford, W. L.; Brooks, A. M., and Katsampes, C.: The Therapeutic Effect of Sulfadiazine and Immune Rabbit Serum in Experimental Murine Pertussis, Yale J. Biol. & Med. **16**: 435-442 (May) 1944.

17. Strean, L. P.; Lapointe, D., and Dechene, E.: Clinical Studies in Immunity to Pertussis with the use of Pertussis Skin Testing Toxin and Antiendotoxin, Canad. M. A. J. **45**: 326-332 (Oct.) 1941.

18. Lapointe, D., and Strean, L. P.: Etude sur la sérothérapie de la coqueluche, Laval méd. **7**: 265-268 (May) 1942.

19. Bullowa, J. G. M., and Alterman, Janet: Pertussis Immunity with Toxin and Antitoxin, J. A. M. A. **120**: 886-890 (Nov. 21) 1942.

REPORT OF THE COUNCIL

The Council has authorized publication of the following statement. AUSTIN SMITH, M.D., *Secretary.*

ANNUAL MEETING OF THE COUNCIL ON PHARMACY AND CHEMISTRY

The Council on Pharmacy and Chemistry of the American Medical Association convened at the Association headquarters, Oct. 13, 1944. Those in attendance were Drs. David P. Barr, H. N. Cole, Morris Fishbein, E. M. K. Geiling, Eugene M. Landis, James P. Leake, Stuart Mudd, E. M. Nelson, W. W. Palmer (Vice Chairman), Elmer L. Sevringhaus, Torald Sollmann (Chairman), Austin Smith and W. Barry Wood Jr. In addition to members of the headquarters staff there were present Dr. E. E. Irons, Secretary of the A. M. A. Board of Trustees, Dr. J. J. Moore, Treasurer of the A. M. A., Dr. Donald A. Wallace, Secretary of the Council on Dental Therapeutics, and Dr. Walton Van Winkle Jr. of the Federal Security Agency, Food and Drug Administration.

The following is an abstracted report of some of the more important discussions and actions:

Stability and Labeling of Phenarsine Preparations.—The Council discussed the question of stability of oxophenarsine hydrochloride (Mapharsen) and dichlorophenarsine hydrochloride, as specimens of the former had been received at the Council office showing variation from normal color. The Council voted that all claims of companies that changes in color of oxophenarsine and dichlorophenarsine have no significance must be deleted. Moreover, there should be a definite warning on the ampul that the contents of all ampuls which on dissolving in distilled water appear yellow to grayish or black should be discarded. Products fused in the tube should never be used. The Council also voted that all containers of individual ampuls should be dated in numerals of at least 8 point size in order to obviate difficulty in ascertaining their age; that informational material put out by the companies should stress the absolute necessity of keeping the compounds in the refrigerator, preferably at 0 to 5 C., and emphasize the necessity of using the earlier batches placed in the refrigerator, not the last ones.

Establishment of a Therapeutic Trials Committee.—The Council usually has considered drugs only after the evidence has been accumulated; it has not initiated clinical trials on substances fresh from the laboratory. However, it has watched and its members have participated in the activities of the Office of Scientific Research and Development and the National Research Council. It believes that the plan of cooperative clinical research which has been instituted during this war is valuable. It also believes that the British Therapeutic Trials Committee has proved its usefulness. Finally the Council believes that it should use its facilities and contacts toward furthering such work if it is necessary to supplement the work of the O. S. R. D. A committee known as the Therapeutic Trials Committee was formed to consider the project and to report to the Board of Trustees of the American Medical Association. This committee believes that the activities of such a group at the present time should take the form of mediating between manufacturers and clinics; that the work should be confined to new products of definite and outstanding promise on which adequate laboratory work is available; that the Committee should have full jurisdiction in the choice of products that it would sponsor; that the costs incurred in the actual trials should be the subject of contract between the manufacturer and the clinic conducting the trials.

Status of Thiouracil.—This drug, which has been the subject of considerable investigation in the medical control of hyperthyroidism, was considered and its status reviewed. It is not available at this time for general use.

Proprietary Names.—The question of accepting proprietary brands of drugs and of recognizing more than one proprietary name for one drug was reviewed. The Council voted that its procedure regarding names of products, which is explained in the official rules of the Council, should not be changed and that the Committee on Nomenclature should prepare a comprehensive and strong statement concerning the significance of names of products in relation to acceptance by the Council and the dangerous confusion that occurs when a single preparation is known under many names.

Principles of Cooperative Medical Advertising Bureau.—The operative principles of the Cooperative Medical Advertising Bureau were discussed and minor changes suggested.

Sale of Endocrine Preparations to the Public.—The Council discussed the sale of endocrine preparations, particularly cosmetics which contain estrogenic and other hormone substances. Such cosmetic preparations are frequently offered with claims that they will affect the physiology of the skin and bring about improvements in the texture and appearance of the skin. Some have stated that such drugs when used in small amounts cannot exert a local effect on the skin without having a general physiologic effect. Others have asserted that, if such preparations contain an adequate dosage to exert an effect on the human body, they may be dangerous; if they do not contain an adequate dosage, they are fraudulent. The Council voted to recommend that the referee review the subject and prepare a statement for publication.

Interpretation of "Nonofficial Constituents."—The Council voted to add the following statement to the paragraph on Nonofficial Constituents in Rule 1:

"Constituents that are not concerned in the pharmacologic action of the preparation need not be submitted in detail, but their nature and quantity must be disclosed to the Council so that it may be judged that they are inert. They must be declared on the label or package by such designations as will make their nature apparent."

Scope of Useful Drugs.—The scope of Useful Drugs was reviewed and it was decided that it should continue to be a book in which are described drugs that have a distinct and important field of usefulness not covered in a better manner by some other drug. It was also decided to include accepted proprietary names as synonyms.

Policy of Committee on Therapeutic Research.—The policies of the Council's Committee on Therapeutic Research were reviewed. The Council voted that the Chairman of the Committee on Therapeutic Research be authorized to ask for an increased annual budget.

Spanish and Portuguese Translations of N. N. R.—The Council has been requested to consider the issuance of Spanish and Portuguese translations of New and Nonofficial Remedies to be made available to the Latin American countries. The Council voted to explore the possibilities.

Digitalis and Purified Principles.—The Council voted that the dosage for purified digitalis principles in solid form should be stated by weight; in the case of injections, by weight and by U. S. P. unit equivalent; the Council further voted that it should acquire as soon as possible appropriate reference standards and that, when such standards are established, recommendations regarding declaration of dosage should be put into effect.

Nonproprietary Names.—The Council voted to request manufacturers to submit nonproprietary names for preparations which they offer under proprietary names, so that if a proprietary name is recognized there will be available at the same time, or soon after, a nonproprietary name in order to prevent the development and promotion of unsuitable nonproprietary names.

Advertising of Contraceptives to the Public.—The Council voted to adhere to its Rule 3 on the question of advertising of contraceptive products. Thus, such agents when advertised to the public are not eligible for consideration by the Council for inclusion in N. N. R.

Educational Activities.—The Council voted to continue its activities concerning projects of special interest to the general practitioner. At the same time it recommended preparation of a review of the status of oral vaccines for the prevention of "colds," this report to be published jointly with the Council on Industrial Health.

Advertising Brochures.—Because of the unnecessary length of many advertising brochures, the Council voted to prepare a statement for publication on the needlessness of such wastes of time and material.

Vitamins and Coenzymes and Sulfonamide Therapy.—The relation of vitamins and coenzymes to sulfonamide therapy was discussed; the Council will be especially alert to any developments in this field.

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SATURDAY, MAY 5, 1945

WAR AND INSECTICIDES

Shortly after our entry into the war, the need for means of control for a great majority of the medically important insects became imperative. The worldwide distribution of our troops and the crowding of civilian workers at home, together with the shortage of pyrethrum and rotenone, were aggravating factors. On the recommendation of the Committee on Medical Research, the Bureau of Entomology and Plant Quarantine initiated at Orlando, Florida, a series of experiments for the development of control methods to be used by the armed forces.

Three separate projects were organized: (1) body louse control, (2) repellents for mosquitoes and other flying and biting insects and for such parasites as mites, ticks and fleas, and (3) larvicides for the treatment of breeding places of Anopheles mosquitoes. On the basis of their early studies the Orlando investigators recommended a formula for the control of the body louse, the head louse and the crab louse consisting of 0.2 per cent of pyrethrins (using a 20 per cent pyrethrum concentrate), 2 per cent of N-isobutylundecyleneamide, 2 per cent of 2,4-dinitroanisole and 0.25 per cent of phenol S (antioxidant) in pyrophyllite. Details of the tests leading to the formulation of this powder and results of tests are discussed in a paper by Bushland and others.[1] This formula, designated as MYL, proved in comparative tests to be more effective against the body louse than other louse powders known to the investigators. It also proved effective in controlling the crab louse, Phthirus pubis (L.), and the head louse, Pediculus humanus humanus L. The repellents recommended are dimethyl phthalate, Rutgers 612 and indalone dimethyl phthalate. Dimethyl phthalate has been found effective against Aedes aegypti, chiggers and fleas.

A new synthetic organic product designated by the symbol DDT, which is derived from the generic name "dichlorodiphenyl-trichloroethane," in the meanwhile was being investigated for its insecticidal properties. Investigations made by Annand and his associates[2] of the Bureau of Entomology and Plant Quarantine have revealed that DDT powder is highly effective and longer lasting than any other lousicide in use. The powder is more effective than the MYL previously recommended by this bureau. The salient feature of DDT is its long lasting quality. It will provide almost complete protection against lice for three weeks and give effective control for a longer period. The most remarkable feature of DDT impregnated clothing is that the treatment kills lice even after the garments have been laundered several times.

A 5 per cent solution of DDT in crude kerosene was found to be the most satisfactory solution for the control of bedbugs, particularly under military conditions. The DDT was also found to be effective in the control of ticks, chiggers and house flies.

1. Bushland, R. C.; McAlister, L. C., Jr.; Eddy, G. W.; Jones, Howard A., and Knipling, E. F.: A Powder Treatment for the Control of Lice Attacking Man, 1943 (unpublished).

2. Annand, P. N., and others: Tests Conducted by the Bureau of Entomology and Plant Quarantine to Appraise the Usefulness of DDT as an Insecticide, J. Econ. Entomol. **37**: 125 (June 1) 1944.

SURGERY IN THE RED ARMY MEDICAL CORPS

The American-British commission after its visit to the Soviet Union eighteen months ago commented that, on the whole, the Russian surgeons were abreast of the times. Our surgeons did not approve of everything they saw but felt that, as Sir Ernest Rock Carling put it, "the Russian soldier was safe in the hands of the Russian surgeons." During the first year of the present war the medical corps of the Soviet Union returned to the front lines 72 per cent of the wounded. By the end of the second year the number of wounded restored to active duty was 73.3 per cent. To this record is added the fact that the Red Army was entirely free from epidemic diseases.

Russia's authority on military medicine of the past century, Pirogov, stressed that good results in field surgery depend primarily on the correct solution of administrative and medical supply problems in the army and only secondarily on the quality of the medical work. On this precept the modern Russians built their system of military medical services. The effectiveness of the organization was stressed by the members of the Anglo-American mission and, in particular, by Loyal Davis,[1] who felt that we had much to learn from the Russians in this respect.

As pointed out by the surgeon general of the Russian army, Professor Smirnov,[2] the success has been possible because of a simple doctrine of war medicine under field conditions. This doctrine is based on the following principles: (*a*) a uniform conception of the origin,

1. Davis, Loyal: Organization of the Red Army Medical Corps, editorial, Surg., Gynec. & Obst. **79**: 329 (Sept.) 1944.

2. Smirnov, Yefim: The Medical Corps in Red Army Operations: Its Tasks and Their Fulfilment, Brit. M. J. **1**: 175 (Feb. 10) 1945.

development and progress of disease, and of the principles of surgical and therapeutic work in the field; (*b*) correct sequence in the treatment of sick and wounded at various stages during their evacuation; (*c*) the obligatory employment of brief, accurate and consistent medical documents, enabling the sick and wounded to be classified in a thorough manner and their treatment to be uniform at all stages of evacuation; (*d*) a single school of thought with uniformity in methods of prophylaxis and treatment of sick and wounded at the various stages of evacuation. The best results are obtained when wounds are treated within a few hours of their infliction. This fact, to a considerable extent, determines the organization and tactics of the medical corps in the field under various war conditions. The principle adopted is to bring the medical help to the wounded man rather than the wounded man to the doctor. Gunshot wounds are treated surgically as soon as possible; the army has organized field units in such a way that the wounded are removed from the battlefield even under enemy small arm and mortar fire and given skilled surgical treatment in the field medical units. The chief task of the forward medical units is to combat serious loss of blood and to give prophylactic treatment against infection of wounds. Another important principle is that of segregation of patients. Wounded who require specialized treatment for wounds of the skull, eyes, jaws, thorax, the long bones and the larger joints are cared for in all institutions, beginning with the mobile field hospitals operating in the zone of the army base. The treatment and evacuation of the slightly wounded and of medical cases are dealt with separately, beginning with the forward units. An important principle adopted by the medical corps is the treatment of wounded in stages of evacuation. At each stage the wounded are treated by specialists and are evacuated into the rear areas. Evacuation is not carried out mechanically from stage to stage but depends on the type of wound and the condition of the wounded and also on conditions at the front. Treatment given at the stages of evacuation is consistent and consecutive, progressing in scope and method as the distance from the forward medical station increases. Smirnov stresses particularly that the scope and methods of treatment, the organization and the speed of evacuation are determined more by the military situation than by purely medical considerations.

Success or failure of this system of treatment and evacuation, according to Smirnov, depends on the correct diagnosis of wounds and the proper classification of wounded, on the presence of a network of specialist hospitals, on precision work on the part of transport and the organization of clearing centers which insure the rapid dispatch of wounded to the next stage, and lastly on the maneuvering of available hospitals, transport and reserves in accordance with changes in the military or medical situation.

The complete freedom of the Red Army from epidemic diseases has been achieved by the simultaneous and correlated activity of all units concerned and is due to the fact that antiepidemic measures among the troops are not carried out by individual specialists but by the medical corps as a whole.

The surgeon general of the Red Army says that the Red Army medical service "does not stand still." Short courses for medical personnel are arranged to improve their knowledge of special branches, and numerous conferences of surgeons, physicians, epidemiologists and workers in other specialties are held at which the experiences of the most progressive specialists and institutions are studied, summarized and popularized.

SENATE DEBATE ON ELLENDER BILL

The Ellender bill, which provides for an adequate supply of premedical and medical students, was published in full in THE JOURNAL March 10, 1945. In the course of the Senate debate on the continuation of the Selective Service Act this bill was presented on the floor of the Senate by Senator Allen J. Ellender of Louisiana on Tuesday, April 24. He stated: "Mr. President, I consider the amendment a must measure. I think that it is absolutely necessary that provision be made now so that our medical colleges throughout the country may obtain students and train them properly in medicine and dentistry." In support of the measure Senator Ellender cited pertinent figures and read a strong supporting statement from the War Manpower Commission.

Mr. Ellender was questioned as to the reason for the Senate Committee on Military Affairs not having acted on this bill in the two months since its introduction into the Senate and its referral to that committee. In reply he stated that this delay was occasioned by the failure of the War and Navy departments to file a statement on the bill with the committee.

Senator Lister Hill of the Committee on Military Affairs stated that failure to hold hearings was "not because the Senator from Louisiana has not been diligent in pursuing the matter. I happen to know that he has been very diligent, but only this morning a letter came from the Navy Department in regard to this subject. . . . I happen to know that the Navy Department is opposed to the amendment. It was only yesterday that a letter came from the War Department. The War Department is also opposed to the amendment."

Senator Hill continued "I am not chairman of the Committee on Military Affaiirs, but as one member of that committee I say to the Senator that if he will withdraw his amendment I shall do everything I can to have the committee give him an expeditious hearing, expeditious consideration and expeditious action on the bill. I do not know what the action will be but certainly it

would seem to me that with a bill of this nature, with the interested departments reporting against it, if the Senator really wants to have his bill passed he will have to get the weight of the committee behind it."

Senator Ellender then withdrew his request for immediate Senate consideration of the bill after the following promise had been made by Senator Edwin C. Johnson of Colorado: "As acting chairman of the Senate Committee on Military Affairs until the return from Europe of the Senator from Utah, Mr. Thomas, I may say that if I am still acting chairman next Tuesday and the Senator from Louisiana is ready to have his bill considered by the Senate Committee on Military Affairs next Tuesday it will be called up."

Since the War and Navy departments have now replied to the Committee on Military Affairs, it would appear that there is no further justification for delay of serious consideration of the measure. Such consideration, and perhaps even favorable action, may have been taken by the time this goes to press.

Current Comment

EDITORIALS FOR EDITORS

The National Physicians Committee has recently begun publication, in several of the periodicals devoted to the interests of the press and to the journalistic profession, of a series of announcements that present the point of view of the medical profession in relation to social security and medical care. The first of these advertisements, entitled "Guardians of a Priceless Heritage," emphasizes the importance of preserving the sanctity of the human personality and the subordination of the state in the maintenance of democracy. It points out that the placing of medical care under the federal government would not necessarily regiment the medical profession but would quite certainly regiment the public as far as medical care is concerned. The second announcement, entitled "Social Security," urges editors to interpret for the people the meaning of the laws relating to social security. This announcement emphasizes that payments are made in cash under the present benefits of the Social Security Act but that it is always proposed that medical care be supplied in the form of service. The final paragraph of this section reads:

> No sane person can believe that any bureaucrat can direct the rendering of medical care without actual suicidal deterioration in the quality and effectiveness of the service that is provided. It is the ultimate in absurdities. The people should be told the facts. Editors should tell them.

The third announcement, "The Sentinel on the Wall," tells editors that the people depend on them for warnings when danger nears. The theme is the place of the physician in the rendering of medical service. Quoting again in part:

> . . . the basic factor responsible for the unequaled effectiveness of the practicing physician is that the whole of his effort always is concentrated on treating and curing the patient—the human being who is sick. . . . Bureaucratic direction would destroy the intangible, indefinable essence that is the secret of the American doctor's effectiveness.

The National Physicians Committee has rendered an excellent service in the field of public relations for American medicine by the publication of this series of advertisements addressed to the editors of the American press.

RATIONING OF PRIVATE DUTY NURSES

Elsewhere in this issue (Medicine and the War, page 36) is a plan which has been adopted by the Rochester (N. Y.) Hospital Council to regulate the employment of private duty nurses in member hospitals. The plan is designed to limit the utilization of nursing personnel on the basis of actual physical need as determined by the attending physician and a reference committee of the medical staff in which the hospital administration is also represented. It further provides that the services of private duty nurses may be transferred or extended to the care of other patients as conditions may demand. Hospitals in every part of the country should consider the development of a similar program so as to conserve nursing personnel and make possible a wider and more equitable distribution of nursing service in civilian hospitals. Even more important, however, is the fact that a voluntary program of this type will help to release additional graduate nurses to meet the urgent demands of the armed forces. If all hospitals will carefully limit their nursing service to actual minimum needs, many of the 24,000 private duty nurses now employed in nonfederal hospitals will no doubt become available for general hospital duty or military service. While it is recognized that special nursing is often required, the patient's ability to pay should not be the determining factor in the assignment of private duty nurses. Under present conditions there can be no justification for luxury care.

ASHESHOV SUGGESTION IN TUBERCULOSIS

In *Science* for Feb. 2, 1945 appeared an article by Igor N. Asheshov and Frieda Strelitz entitled "An Antibiotic Substance Active Against Mycobacterium Tuberculosis." In this article the authors report experiments performed at the University of Western Ontario, London, Canada, with a fungus known as Aspergillus fumigatus. Crude preparations with substances derived from the growth of this fungus indicate, according to the authors, that:

> (1) they possess a high degree of activity against staphylococci, preventing their growth in 1 : 700,000 of the dry crude substance; (2) their bacteriostatic activity against BCG appears to be higher, preventing growth in at least 1 : 1,400,000 dilution; (3) their bactericidal action against BCG is equal to or slightly lower than their antistaphylococci activity. . . . The active substance investigated may be similar to fumigacin or helvolic acid (Waksman [Waksman, S. A.: *Science* **99**:220, 1944]; Chain et al. [Chain, E., et al.: *Brit. J. Exper. Path.* **24**:108, 1943]), though some of its properties seem to indicate that the two antibiotics are not identical. Some other, as yet unidentified, molds were found to produce active substances against tubercle bacilli and are now under investigation.

Certainly this work is hardly sufficiently advanced even to suggest that any of these substances are effective in the treatment of tuberculosis in human beings. The experimentation would seem to be in an exceedingly early stage. Unfortunately the columnist Ed Sullivan, in his syndicated column not long ago, made this statement:

To tuberculosis patients: Contact American Medical Journal on Dr. Asheshov's Western Ontario U. experiments.

The result has been a flood of letters addressed to the headquarters office of the American Medical Association by people who think that a remedy has been found. It is unfortunate that so many people will have to be told that the experiments of Asheshov are only indicative and that there is nothing that is immediately useful from them.

THE EVALUATION OF RESULTS IN THE TREATMENT OF INFANTILE PARALYSIS

Elsewhere in this issue of THE JOURNAL (page 21) appears a statement by a special committee appointed by the Scientific Advisory Board of the National Foundation for Infantile Paralysis to determine standards for the evaluation of the results of treatment of infantile paralysis. The committee emphasizes, and rightly, that the evaluation of various forms of treatment is of the utmost importance in determining the procedures to be recommended when an epidemic strikes. Already it is well established that the amount of damage done to the nervous system primarily and to the muscles secondarily in this disease varies from one epidemic to another. Certainly mortality rates vary in different epidemics. Even the portions of the body that are primarily affected seem to differ; respiratory paralysis is much more frequent during some outbreaks than during others. The ultimate damage seems to vary according to the methods of treatment followed, yet assessment of both the immediate and the ultimate disability is exceedingly difficult. The committee has indicated research which might be undertaken to determine uniform methods of evaluation.

PEPTIC ULCER MORTALITY IN BRITAIN

According to mortality studies based on the reports of the Register General for England and Wales [1] peptic ulcer ranks low as a cause of death. In the ten year period preceding the war, however, the mortality among men increased steadily; since the outbreak of the war this increase has been accelerated. A comparison of mortality rates for the years 1911-1920 and 1932-1934 shows that the mortality rate in men after age 35 has increased, the rise becoming greater with advancing years, so that mortality from peptic ulcer at ages 45-75 has almost doubled. With women the trend has been different, with a decline at all ages under 55 and a relatively small rise from ages 55-75. Indeed, this significant rise in ulcer mortality for man at 45-65 has contributed to the lack of improvement in the death rate from all diseases for men of these ages, whereas in women there has been a steady decline. Mortality in men from gastric and duodenal ulcer varies widely in different social classes. Up to age 55 mortality from gastric ulcer in men rises in a regular manner with a descent in the social scale. There are five times more deaths in the poorest class at ages 25-45 than in the wealthy and professional groups. But this is not true for duodenal ulcer. Up to age 55 there is little difference in mortality among social groups, but after age 65 duodenal ulcer mortality definitely increases in the wealthy and professional groups, so that at age 70 and over the duodenal ulcer mortality is more than two times greater in the wealthy than in the poor. In men between the ages of 35 and 70 the mortality rate is over 100 per cent higher in London than in the rural areas. The acute depression of the 1930s with unemployment led to a reduction in ulcer mortality, but when unemployment declined mortality rose sharply. Almost immediately the war produced a rise in the mortality from peptic ulcer. Despite distortion due to population changes, it appeared that the rising mortality shifted with changes in air attacks from London to other parts of England and Wales. The pattern of mortality has remained consistent from year to year. This survey asks more questions than it answers, but it reflects the multiplicity of factors concerned in the pathogenesis of and mortality from peptic ulcer.

1. Morris, J. N., and Titmuss, Richard M.: Epidemiology of Peptic Ulcer: Vital Statistics, Lancet **2**: 841 (Dec. 30) 1944.

VOCATIONAL GUIDANCE PAMPHLETS

Two authoritative pamphlets on "The Outlook for Women in Occupations in the Medical Services" dealing with physical therapists and occupational therapists have just been published by the Women's Bureau of the U. S. Department of Labor.[1] The excellent material in both pamphlets is a source of information for those concerned with vocational guidance and is of inestimable value to all who plan to obtain training in these occupations. Prior to publication each pamphlet was reviewed by representatives of various agencies or organizations who are leaders in these fields. Emphasis has been placed on presenting a clear, concise picture of the scope of the occupation, employment before the war, changes that have occurred as a result of the war, earning power of these therapists, and future needs for workers who have had adequate training and experience. Additional pamphlets will be printed to present pertinent information on other occupations in the medical field. Some of these discussions of occupations will be printed separately because of the timeliness of this information, but the entire series will be published later together with a discussion of important "trends affecting the many women employed in these services so important to the nation whether at peace or at war." The series will be listed as required reading by vocational guidance counselors.

1. Published by the Women's Bureau of the United States Department of Labor, the pamphlets are available at 10 cents each by addressing the Superintendent of Documents, United States Government Printing Office, Washington 25, D. C. The writer should request Bulletin 203, numbers 1 and 2.

MEDICINE AND THE WAR

ARMY

CONSERVATION OF X-RAY FILM

Owing to the serious shortage of x-ray film for both military and civilian purposes, the Army Medical Department is making every effort consistent with the maintenance of high professional standards to conserve it, Major Gen. Norman T. Kirk, Surgeon General of the Army, recently announced.

The Army Medical Department has had a steadily increasing need for x-ray film as a result of the large number of battle casualties and the necessity of taking numerous x-ray pictures in connection with the treatment of these patients.

Detailed instructions have been issued to all army medical officers to conserve film. Although a medical case history will be prepared on every man involved in the redeployment of troops following VE day, chest x-rays will not be made of all because that was done prior to shipping the men overseas. Since that time the Army has kept a critical medical eye on the health of the troops for symptoms of tuberculosis or any other disease. However, if tuberculosis or any other chest disease is suspected, an x-ray examination will be made.

Prior to reassignment under the redeployment plans, whatever is necessary medically will be done to bring the men to the fullest possible point of physical and mental efficiency, General Kirk stated.

Largely as a result of the Medical Department's program of screening soldiers by chest x-rays on induction, the incidence of tuberculosis has been only one tenth as high in this war as it was in the last war.

Figures in other fields of medicine reflect the benefits that the American soldier is deriving from the intensive efforts made to safeguard his health. The death rate from pneumonia has been reduced from 24 per cent in the last war to 0.6 per cent in this war. The incidence of malaria is only one fourth what it was in the early stages of this war.

These standards of low disease incidence must be maintained or improved if possible, General Kirk pointed out, but every reasonable economy must be used to stretch out the critical supply of x-ray film for both military and civilian use.

SERVICE COMMAND CONSULTANTS IN MEDICINE TRANSFERRED

Col. Vern R. Mason, former consultant in medicine of the Ninth Service Command, is now on duty overseas as medical consultant of the Pacific Ocean Area.

Col. Irving S. Wright, former consultant in medicine, Sixth Service Command, is now consultant in medicine, Ninth Service Command; Col. Alexander Marble, former chief of medical service, Harmon General Hospital, is now medical consultant, Sixth Service Command, and Lieut. Col. Worth B. Daniels is now chief of medical service at Harmon General Hospital, Longview, Texas.

GENERAL ROGERS HONORED BY TWO ALLIES

Brig. Gen. John A. Rogers, surgeon of the First Army, was recently awarded the medal of Officer, Order of the British Empire, and the French Croix de Guerre with Palm in recognition of his contribution to the Allied victories on the western front.

DR. GEORGE E. BURCH APPOINTED CONSULTANT

Dr. George E. Burch, associate professor of experimental medicine, Tulane University of Louisiana School of Medicine, New Orleans, was recently appointed civilian consultant to the Surgeon General for diseases of peripheral blood vessels with particular emphasis on trench foot and allied conditions.

EDUCATIONAL OPPORTUNITIES FOR ARMY DOCTORS

Major Gen. George F. Lull, Deputy Surgeon General, recently reported that since the start of World War II over 6,000 selected medical officers have been graduated from short but intensive courses given by the Medical Department in some thirty critical medical and surgical specialties. In addition, refresher courses in general medicine and surgery provide medical officers with a chance to "brush up" before returning to professional assignments after other duty.

Many doctors also benefit while in service from working under key professional personnel in military hospitals. Other medical officers who have been on duty with combat troops in the field are given an opportunity to brush up on their specialty through the rotation policy.

General Lull reported that 350 doctors have been reassigned from field to hospital duty during the past year in the Mediterranean theater and "the merit of intratheater rotational plans has been pointed out to other theaters and is being encouraged in order that the maximum number of doctors might receive refresher training while they are still in military service."

In the postwar period, General Lull added, all doctors will be entitled to professional training, after their release from service, under the G. I. Bill of Rights, and those who remain in the Army will have the opportunity for refresher training at selected military hospitals and civilian schools.

ARMY X-RAY CONFERENCE

A three day conference was recently held at the Medical Department Equipment Laboratory, Carlisle, Pa., attended by representatives of the Army Service Forces, Army Ground Forces, Army Air Forces and U. S. Navy, together with representatives of industrial companies manufacturing x-ray equipment. Improvements in present x-ray equipment and requirements for future development were discussed. Captured German x-ray equipment also was demonstrated at the conference.

NURSES INTERVIEWED

The American Red Cross is conducting personal interviews with all nurses classified as "available" by the Procurement and Assignment Service. Physicians, hospitals and hospital boards, industries, health agencies and registries which have contact with "available" nurses should be urged to give opportunity to the interviewers from the Red Cross to consult with these nurses, since this is essential for recruitment.

NEW CONSULTANT IN DERMATOLOGY

Major Clarence S. Livingood was recently appointed consultant in dermatology to the Surgeon General. Major Livingood recently returned from overseas, where he had been stationed at a general hospital in the India-Burma Theater since 1942. While there he received the Legion of Merit for outstanding work in dermatology.

COLONEL COOK DIRECTOR OF OCCUPATIONAL HEALTH DIVISION

Lieut. Col. William L. Cook Jr. was recently assigned director of the Occupational Health Division, Preventive Medicine Service, Office of the Surgeon General, succeeding Col. Anthony J. Lanza, recently retired from active duty. Dr. Cook graduated from Columbia University College of Physicians and Surgeons, New York, in 1934 and entered the service May 7, 1942.

ARMY AWARDS AND COMMENDATIONS

Brigadier General James E. Baylis

The Legion of Merit was recently awarded to Brig. Gen. James E. Baylis, formerly of Cincinnati. The citation accompanying the award stated that "as surgeon of the Fourth Corps Area from Oct. 1, 1940 to Jan. 24, 1942 his energy, sound judgment and foresight contributed materially to the expansion, supply and operation of the Corps Area Medical Service and the initiation of preventive sanitary methods for reducing the sick rate. He planned and supervised the efficient evacuation of patients from the First and Third Army Maneuvers in 1941. As commanding general of the Medical Replacement Training Center, Camp Joseph T. Robinson, Arkansas, from Jan. 25, 1942 to Oct. 1, 1943 he organized and directed the activities of this installation with exceptional success, completing the training of more than 46,000 replacements. Utilizing the existing facilities provided, he transformed a standard military camp into the most important training installation in the Eighth Service Command. The detailed arrangements which he perfected for the field sanitation, administration and the motor and tactical training of his troops were unique in their effectiveness and attractiveness. He demonstrated unusual leadership and ingenuity in the development and application of training aids and expedients to provide shade and shelter for his troops during outdoor instruction. His work at this training center was a noteworthy contribution to the war effort." General Baylis graduated from Tulane University of Louisiana School of Medicine, New Orleans, in 1910 and has been in the service since May 28, 1912.

Colonel Alfred A. DeLorimier

Col. Alfred A. DeLorimier, formerly of Washington, D. C., was recently awarded the Legion of Merit for "service as director of the Department of Roentgenology, Army Medical School, Army Medical Center, Washington, D. C., from Sept. 8, 1939 to Oct. 1, 1942. He developed an easily transportable, complete and efficient field x-ray equipment for the Army which permits the location of bullets and shell fragments in the body of a wounded man and makes it possible for the surgeon to extract them. He tested all types of roentgenologic materials procured for the Army and formulated the specifications necessary for their purchase. He made extensive studies of the use of photoroentgenography and was instrumental in developing stereoroentgenography, which has a valuable use in induction centers and in mass surveys. By his initiative, original thinking and development work he has performed outstanding service and contributed materially to the war effort." Dr. DeLorimier graduated from the University of California Medical School, San Francisco, in 1927 and entered the service May 10, 1929.

Lieutenant Colonel George T. Colvard

Posthumous award of the Bronze Star Medal was recently made to Lieut. Col. George T. Colvard of Deming, N. M. The citation accompanying the award mentioned "service from Aug. 29 to Sept. 7, 1944. He served as medical officer of a prisoner of war camp and aboard a prison ship, caring for hundreds of men. While aboard ship he taxed his strength to the limit of physical endurance in caring for the weak and sick. He never paused to rest while on the ship as the men in the stifling hold often became unconscious as the result of the severe heat and lack of oxygen but ministered to them at the sacrifice of his own health. Colonel Colvard, who lost his life while serving his fellow men, demonstrated unremitting effort and devotion to duty." Dr. Colvard was reported killed in action Sept. 7, 1944 in the sinking of a Japanese prison ship off the Philippine Islands. He graduated from the Medical College of Virginia, Richmond, in 1924 and entered the service Jan. 6, 1941.

Major William E. Clark

Major William E. Clark, formerly of Mason, Mich., has been awarded the Bronze Star "for meritorious service in connection with military operations against the enemy of the United States in France, Luxembourg and Belgium during the period from Oct. 13, 1944 to Feb. 15, 1945. As division neuropsychiatrist he treated large groups of patients, as many as 127 on one occasion during one day. Through his untiring efforts and his professional ability he was instrumental in returning to duty a large number of men who otherwise might have been lost to the division." Dr. Clark graduated from the University of Michigan Medical School, Ann Arbor, in 1936 and entered the service July 25, 1942.

Major Elmer A. Kleefield

The Bronze Star was recently awarded to Major Elmer A. Kleefield, formerly of Forest Hills, N. Y., "for meritorious service in connection with military operations against an enemy of the United States from July 4, 1944 to Jan. 24, 1945. As radiologist of the 34th Evacuation Hospital, Major Kleefield distinguished himself by his outstanding performance of duty. Exhibiting the highest professional attainments and zealous devotion to duty, the accomplishments of Major Kleefield distinguish him as an outstanding officer and merit high commendation." Dr. Kleefield graduated from Long Island College of Medicine, Brooklyn, in 1930 and entered the service Nov. 3, 1942.

Captain Stanley E. Morgan

Capt. Stanley E. Morgan, formerly of New Orleans, was recently awarded the Bronze Star. The citation accompanying the award explained that, "learning of several wounded soldiers badly in need of medical care, Captain Morgan braved heavy enemy mortar and small arms fire to reach the forward position in which they were. When enemy attacks forced other men of the position to withdraw, Captain Morgan supervised the evacuation of less seriously injured and elected to remain with those casualties who were too dangerously injured to be moved, despite the risk of capture or death." Dr. Morgan was taken prisoner by the Germans Oct. 6, 1944. He graduated from Louisiana State University School of Medicine, New Orleans, in 1941 and entered the service in May 1942.

Captain Lemuel Bowden

Capt. Lemuel Bowden, formerly of Norfolk, Va., was recently awarded the Legion of Merit for "services at Fogo Island, Newfoundland, from Nov. 3, 1943 to Nov. 24, 1944. As platoon surgeon of the 685th Signal Aircraft Warning Station, he gave freely of his technical skill and ability by rendering services to the civilians of Fogo Island at great personal sacrifice. In addition to his duties as platoon surgeon he performed many major surgical operations under adverse conditions with little equipment and at places far removed from his base." Dr. Bowden graduated from Harvard Medical School, Boston, in 1939 and entered the service Jan. 15, 1943.

Captain William A. Pallone

The Air Medal was recently awarded to Capt. William A. Pallone, formerly of Flushing, N. Y. A letter received from the Commander Officer by his family recently stated, in part, "It was an award made in recognition of courageous service to his combat organization. He was cited for meritorious achievement while participating in aerial flights in the Southwest Pacific Area from Aug. 12, 1943 to June 1, 1944. He took part in sustained operational flight missions during which hostile contact was probable and expected. These flights included bombing missions against enemy installations, shipping and supply bases and aided considerably in the recent successes in this theater." Dr. Pallone graduated from the Royal University of Rome in 1936 and entered the service Sept. 22, 1942.

Captain Richard J. Ackart

Capt. Richard J. Ackart, formerly of New York, was recently awarded the Bronze Star for outstanding bravery on the field of battle. A member of a medical detachment of the 38th Infantry Regiment of the 2d Infantry Division of the First Army, Dr. Ackart is now in Germany, where he was awarded the medal by Major Gen. Walter M. Robertson, commanding general of the division. With this award Dr. Ackart has also received the Oak Leaf Cluster to his Bronze Star and the second Oak Leaf Cluster. According to the citation which accompanied the second cluster, "Company E was

fighting on the eastern outskirts of town and suffering many casualties from machine gun and aimed small arms fire. While working around the aid station, several men came to the aid station and told Captain Ackart that litter bearers were needed very badly in E company's sector. It was impossible to send out any more litter bearers because they were all with the assault companies. Noting the lack of litter bearers, Captain Ackart and one of his enlisted personnel grabbed a litter and went to Company E's sector. He was immediately stopped by the company commander and was told not to go any farther forward as the enemy had that sector under intense machine gun fire. Disregarding this advice, Captain Ackart and his helper went forward, creeping and crawling to a point less than 100 yards from the enemy tank machine gun fire. It was at this point that one of the officers of the battalion was mortally wounded, but despite this murderous fire about him Captain Ackart and his aid man unnecessarily exposed themselves to this fire from the enemy in order to evacuate this officer. Alone these two men, with but a slim chance of getting back to safety themselves, loaded this officer on the litter and miraculously got him back to the rear. Such gallantry, heroism and utter disregard for his personal safety reflect extreme credit on Captain Ackart and the military service." Dr. Ackart graduated from the University of Rochester School of Medicine and Dentistry in 1942 and entered the service in August 1943.

Captain Harold P. Sortman

The Silver Star was recently awarded to Capt. Harold P. Sortman, formerly of Wilmington, Del., "for gallantry in action in the vicinity of Lup, Sicily, July 12, 1943. Captain Sortman, with complete disregard for intense enemy artillery fire, left a sheltered area position and entered an area under bombardment so that he might better aid the wounded and supervise their evacuation. His noble and unselfish action reduced suffering and saved the lives of a number of men." Dr. Sortman graduated from Jefferson Medical College of Philadelphia in 1936 and entered the service in June 1942.

Lieut. Col. Edwin S. Wallace

Lieut. Col. Edwin S. Wallace, formerly of Lexington, Mo., was recently awarded the Bronze Star "for meritorious service in connection with military operations against an enemy of the United States in France, Germany and Luxembourg during the period Nov. 1, 1944 to January 6, 1945. As commanding officer of a medical battalion Lieutenant Colonel Wallace distinguished himself through continuous long hours of arduous work. In spite of most adverse conditions he efficiently planned and executed the treatment and evacuation of the sick and wounded in close support of combat elements. Lieutenant Colonel Wallace's outstanding devotion to duty and display of technical skill resulted in the reduction of trench foot and other diseases to an absolute minimum, thereby contributing substantially to the successful combat operations of the 10th Armored Division during the period. His ceaseless energy and enthusiasm were an inspiration to his fellow officers and men and are in keeping with the high traditions of the armed forces of the United States." Dr. Wallace graduated from Washington University School of Medicine, St. Louis, in 1935 and entered the service in November 1940.

Major Ronald A. Bettle

The Bronze Star was recently awarded to Major Ronald A. Bettle, formerly of Hattiesburg, Miss., "for meritorious service in Germany during the period Nov. 1, 1944 to Feb. 15, 1945 in connection with military operations against the enemy. As surgeon for his unit, Major Bettle was responsible for medical attention of an exceptionally large group of administrative, technical and reinforcement personnel dispersed over a wide area. By his ingenuity he provided outstanding medical care for the troops and won high praise from all concerned. His initiative and technical knowledge reflect great credit on himself and the military service." Dr. Bettle graduated from the College of Medical Evangelists, Los Angeles, in 1940 and entered the service Feb. 26, 1941.

MISCELLANEOUS

RATION PLAN FOR PRIVATE DUTY NURSES ADOPTED

The following plan for the employment of private duty nurses in Rochester hospitals was recently approved by the Rochester Hospital Council and endorsed by the six member hospitals. Effective March 1, the plan is intended to apportion available private duty nursing service on the basis of physical need of the patient rather than ability to pay. The plan provides that:

1. No private duty nurse be employed in any member hospital of the Rochester Hospital Council unless the attending physician attests in writing the need for her services in each individual case.

2. When, in the opinion of a physician, the service of a private duty nurse is necessary, he shall apply to the nursing department for the employment of private duty nursing service. Such application shall state the diagnosis and the reason why the physician considers private duty nursing essential. Such application may be made by telephone but must be substantiated promptly in writing.

3. In order to insure a fair allotment of nursing service and to provide a fair and impartial review of requests for private duty nursing service, there shall be in each hospital a reference committee consisting of representatives of the medical staff and the administration which shall have final decision on all matters relating to the employment of private duty nursing service for the duration of the emergency. (At the Rochester General Hospital this committee includes Drs. C. S. Lakeman, C. B. F. Gibbs, C. G. Parnall and F. C. Sutton.)

4. When private duty nurses have been employed for special patients they may be transferred to the care of other patients whose need is more urgent by the nursing department subject to the review of the reference committee.

It is suggested that, whenever conditions warrant, the services of a private duty nurse shall be made available for more than one patient.

USE OF DDT FOR MOSQUITO CONTROL IN THE UNITED STATES

A Joint Statement of Policy by the U. S. Army and the U. S. Public Health Service

Successful use of the new insecticide DDT to combat insect borne disease among our troops overseas has brought sudden renown and notoriety to this potent war developed insect killer. Dramatic reports of its large scale use to control epidemics, and especially the spraying of DDT from aircraft, have fired public imagination and fostered the hasty conclusion that DDT is a complete solution to all of our insect borne disease problems. However, it must be remembered that DDT distributed over the countryside not only destroys malaria carrying mosquitoes but also may kill other insects, many of which are beneficial. Much still must be learned about the effect of DDT on the balance of nature important to agriculture and wild life before general outdoor application of DDT can be safely employed in this country. It may be necessary to ignore these considerations in war areas where the health of our fighting men is at stake, but in the United States such considerations cannot be neglected.

Extensive investigations are now being carried out by authorized agencies to determine the usefulness and possible hazards in the large scale dissemination of DDT. Until more information has been obtained from such investigations and until it has been evaluated by all interested parties, plans to employ DDT indiscriminately for outdoor area control of insect disease vectors in this country are not to be encouraged.

Since the beginning of mobilization the Army has carried on an extensive antimosquito campaign inside military reservations, and the U. S. Public Health Service has maintained a cooperative program for the control of malaria in adjacent extramilitary areas. This joint effort has successfully prevented malaria from becoming a problem to troops in this country. To meet the hazard of possible spread of malaria

by troops returning from overseas, the Army's program in military areas has been intensified and the program of the Public Health Service has been extended to include certain additional selected areas in the South, where risk of transmission is greatest. Representatives of the Army and the Public Health Service have given full consideration to ways in which this mosquito control program might be strengthened by employing DDT. The following joint policy has been agreed on pending acquisition of further knowledge concerning the large scale outdoor application of DDT:

1. DDT will be used for residual spray application to houses and other buildings for the purpose of killing adult mosquitoes before they have opportunity to transmit malaria. The long lasting killing effect of DDT as a residual spray provides a highly effective means to prevent the spread of the malarial parasite. This method of use is safe and economical and, moreover, is welcomed by the householder because it provides freedom from insect annoyance.

2. The use of DDT as a mosquito larvicide will be limited to experimental investigations and to situations in which DDT has definite advantage over other larvicides in saving materials and manpower, and presents no hazard to fish and other wild life.

3. Distribution of DDT from aircraft for large scale area control of mosquitoes in military and adjacent areas in the United States will be limited to projects conducted with due regard to the possible effects of DDT on beneficial insects and all forms of plant and animal life and in accordance with safeguards established by the Surgeons General of the Army and the U. S. Public Health Service.

WARTIME GRADUATE MEDICAL MEETINGS

The following subjects and speakers for Wartime Graduate Medical Meetings have just been announced:

Illinois

Gardiner General Hospital, Chicago: Types of Diabetes Mellitus and Their Treatment, Dr. Arthur R. Colwell, May 9; Some Fundamentals in Psychotherapy, Dr. David Slight, May 16; Wound Healing and Tendon Surgery, Drs. Hilger P. Jenkins and Alfred Rasmussen, May 23.

Station Hospital, Fort Sheridan: Peptic Ulcer, Gallbladder and Liver Diseases, Drs. Walter L. Palmer and Lester R. Dragstedt, May 17; Thrombosis, Thrombophlebitis and Anticoagulants in Less Common Peripheral Vascular Diseases, Drs. Geza de Takats and Armand J. Quick, May 24.

Vaughan General Hospital, Hines: Presentation of Allergy Cases, Capt. W. H. Horwitz, May 11; Heart Disease and Allied Conditions, Drs. Newell C. Gilbert and George K. Fenn, May 16; Presentation of Medical Cases, Major R. N. Tindall, May 18; Bone and Joint Infections, Drs. C. H. Hatcher and David Markson, May 23; Intestinal Parasites, Capt. J. M. MacMillan and Capt. Nathan Brooks, May 25.

U. S. Naval Hospital, Great Lakes: Tumors of the Chest, Dr. Willard Van Hazel, May 15.

Mayo General Hospital, Galesburg: Chest Diseases, Drs. Paul H. Holinger and Henry C. Sweany, May 18; Low Back Pain, Drs. Adrien Verbrugghen and Fremont A. Chandler, May 23.

Station Hospital, Camp Ellis, Lewistown: Arterial Vascular Disease; Traumatic Lesions, Lieut. Col. Ford K. Hick and Lieut. Col. John H. Gibbon, May 16; Repair of Bone in Fractures and Diseases, Dr. James R. Regan, May 23.

Regional Hospital, Chanute Field: Dermatologic Diseases, Drs. James H. Mitchell and Francis E. Senear, May 16; Burns and Plastic Surgery, Drs. Wayne B. Slaughter and Volney B. Hyslop, May 23.

Indiana

Billings General Hospital, Fort Benjamin Harrison: Malignancies in the Army Age Group: Medical X-Ray and Surgical Diagnosis and Treatment, Dr. Danely P. Slaughter, May 16; Endocrinology, Drs. Willard O. Thompson and Carl P. Huber, May 23.

Wakeman General Hospital, Camp Atterbury: Virus and Rickettsial Diseases; Medical and Neurologic Diseases and Treatment, Dr. Jonas E. Salk, May 16; Psychosomatic Medicine, Dr. David Slight, May 23.

Kentucky

Fort Knox General Hospital, Louisville: Surgical Relief of Involuntary Movement, Dr. Paul C. Bucy, May 16; Some Common Problems Encountered in the Diagnosis and Treatment of Infections in the Genitourinary System, Dr. Norris J. Heckel, May 16; Digestive Disorders, Dr. Walter L. Palmer, May 30; The Support of the Circulation in Surgery, Dr. Dallas B. Phemister, May 30.

Nichols General Hospital, Louisville: Surgery Relief of Involuntary Movement, Dr. Paul C. Bucy, May 17; Some Common Problems Encountered in the Diagnosis and Treatment of Infections in the Genitourinary System, May 17; Digestive Disorders, Dr. Walter L. Palmer, May 31; The Support of the Circulation in Surgery, Dr. Dallas B. Phemister, May 31.

Nebraska

A. A. F. Station Hospital, McCook Army Air Field: Clinical Pathologic Discussion of Liver Diseases, Drs. Esley J. Kirk and Charles P. Baker, May 15.

West Virginia

Newton D. Baker General Hospital, Martinsburg: Chemotherapy in War Wounds, Dr. Frank L. Meleney, May 28.

HOSPITALS NEEDING INTERNS AND RESIDENTS

The following hospitals have indicated to the Council on Medical Education and Hospitals that they have not completed their house staff quota allotted by the Procurement and Assignment Service:

(Continuation of list in THE JOURNAL, April 21, page 1061)

COLORADO

Colorado Psychopathic Hospital, Denver. Capacity, 78; admissions, 800. Dr. Charles A. Rymer, Acting Director (2 fellowships—psychiatry, September 1).

LOUISIANA

North Louisiana Sanitarium, Shreveport. Capacity, 132; admissions, 4,260. Mrs. Will Samford, R.N., Superintendent (intern).

MARYLAND

Johns Hopkins Hospital, Baltimore. Capacity, 1,034; admissions, 18,214. Dr. Winford H. Smith, Director (interns—otolaryngology, radiology, July 1).

MASSACHUSETTS

St. Anne's Hospital, Fall River. Capacity, 141; admissions, 3,740. Sister Marie Stanislas, Superior (resident—mixed service, July 1).

NEW HAMPSHIRE

Elliot Hospital, Manchester. Capacity, 159; admissions, 2,834. Mrs. Elizabeth M. McKay, R.N., Superintendent (resident—mixed, disqualified for military service).

NEW YORK

Auburn City Hospital, Auburn. Capacity, 255; admissions, 6,198. Mr. Jerome F. Peck Jr., Acting Superintendent (resident—mixed, disqualified for military service).

Jamaica Hospital, Jamaica. Capacity, 227; admissions, 5,279. Mr. Francis C. Leupold, Superintendent (interns).

St. Agnes Hospital, White Plains. Capacity, 177; admissions, 2,695. Sister M. Madeline, R.N., Superintendent (interns).

TENNESSEE

Nashville General Hospital, Nashville. Capacity, 337; admissions, 6,586. Mr. T. F. Connally, Administrator (resident—pathology, October 1).

TEXAS

Methodist Hospital, Dallas. Capacity, 225; admissions, 8,193. Dr. C. W. Sensenbach, Medical Director (interns, July 1).

VIRGINIA

University of Virginia Hospital, Charlottesville. Capacity, 571; admissions, 11,181. Dr. Carlisle S. Lentz, Administrator (assistant resident; graduate student, dermatology and syphilology, June 15, disqualified for military service).

Riverside Hospital, Newport News. Capacity, 233; admissions, 5,382. Dr. H. H. Towler, Superintendent (3 residents—mixed service, June 1).

Grace Hospital, Richmond. Capacity, 100; admissions, 4,135. Mr. R. H. Thomas, Managing Director (resident—mixed service, July 1, disqualified for military service).

ORGANIZATION SECTION

Washington Letter

(From a Special Correspondent)

April 28, 1945.

Ask Removal of Venereal Disease as War Disability

Congress and state legislatures have been asked to modify the Starnes Veteran Preference Act of 1944 to exclude venereal diseases as a war service connected disability allowing war veterans preferences in civil service appointments. The National Civil Service League, in a resolution, holds that enactment of Public Law 439 of 1944 entitles war veterans suffering from venereal diseases contracted in service to disability allowance. It claims that this puts a premium on misconduct and that such disability would be on a par with that paid men who lose arms, legs or eyes. The league contends that section 2 of an act of May 17, 1926 provided an amendment which said that "venereal disease shall not be presumed to be due to misconduct if the person in service complies with Army or Navy regulations requiring . . . treatment for such disease." The Starnes act automatically gives a veteran with service connected disability 10 points in Civil Service examinations. Venereal disease was not specified and under regulations, it is said, could easily apply as a disability for benefits.

The Problem of Illegitimate Children of Service Wives

The adoption Bureau of the District of Columbia Board of Public Welfare reports moral and legal problems in handling placements of illegitimate children of service wives, conceived after their husbands went overseas. Director Nina Trevett reports that of the 50 babies placed in permanent homes in the Capital during the past year, nearly all were illegitimate children of army, navy and marine corps wives. Typical of the boom in child adoptions throughout the country, Miss Trevett reports that the bureau has a waiting list of 114 would-be foster parents. War conditions, she said, have forced the bureau to abandon its prewar regulation requiring three months' study and observation of a child before it is placed with foster parents. The bureau has, in cases, sanctioned placement direct from hospitals. Customary procedure requires a three month study of a child to determine its mental and physical well being and a six month probationary period with the foster parents.

Seven Medical Leaders Elected to Academy of Sciences

Among thirty-five distinguished scientific leaders representing twelve general fields of science who were elected to the National Academy of Sciences at the annual meeting here were seven men in the field of medical science. They include Dr. Robert R. Williams, chemical director of the Bell Telephone Laboratories, who was the first to synthesize vitamin B_1; Dr. Clarence C. Little, managing director of the American Society for Cancer Control; Dr. Alfred Blalock, professor of surgery at Johns Hopkins University, who is noted for his studies of shock and, more recently, for finding that myasthenia gravis can be successfully treated in some cases by removal of the thymus gland in the chest; Dr. John R. Paul, professor of preventive medicine at Yale University, a disease fighter who has done much work in recent years in tracing infantile paralysis epidemics to learn more about how this disease spreads; Dr. Homer W. Smith, director of the physiologic laboratory at New York University, noted for his research on high blood pressure and kidney function; Dr. William C. Stadie, professor of the department of research medicine, University of Pennsylvania, and Dr. James L. Gamble, pediatrician, of the Harvard Medical School. Present at the annual meeting were 117 of the 350 members. This is the first time in the history of the academy that thirty Americans, the yearly limit permitted by its charter, were elected in one year. Also elected were five foreign associate members, among them Dr. Paul Karrer, Swiss, who shared the Nobel chemistry prize in 1937, for working out the chemical formula for vitamin A.

Senate Approves Bill for Capital Hospital Center

The Senate has passed without opposition a bill sponsored by Senator Tydings, Democrat of Maryland, to create a postwar 1,500 bed hospital center in Washington. It now goes to the House for consideration. The bill would authorize the Federal Works Administration to acquire a site immediately on termination of the war and provide two thirds of the cost of erecting and equipping buildings. The other third of the cost, estimated at 20 or 30 million dollars, would be borne by existing District hospitals, which would participate in establishment, maintenance and operation of the center. Hospitals which have indicated their interest in cooperating in the project are Garfield, Emergency and Episcopal Eye, Ear and Throat. The Senate bill would permit these hospitals to allocate their share of costs on agreement to repay them over a period of twenty years at 2 per cent interest. The center would include a nurses' school and home, parking areas and special laboratories, and the 1,500 bed hospital would be equipped with operating rooms, laundries, x-ray machines, heating plant and other necessary equipment.

Wisconsin Alumni Group Fights to Validate Vitamin D Patents

The Supreme Court has been asked by the Wisconsin Alumni Research Foundation to review a lower court decision holding invalid three patents relating to the use of vitamin D in treating rickets. The foundation filed a petition for a writ of certiorari in its suit charging Vitamin Technologists, Inc., with infringement of its patents. The appeal was made after the Ninth Circuit Court of Appeals ruled in June 1943 that the foundation's patents were void as against the public interest and lacking in invention. The patents were granted on discoveries made by Dr. Harry Steenbock, Wisconsin University professor, on producing vitamin D in foods and medicine by exposing them to ultraviolet rays. The circuit court decision reversed a Southern California federal district court ruling of 1941 which had held the patents valid and ruled that the vitamin firm had infringed on them. The foundation contended in its appeal to the Supreme Court that it was being denied relief against an infringer for refusing in the past to license oleomargarine manufacturers under the patents. "The patents in suit do not claim anything broader than Dr. Steenbock's inventions," said the petition. "The claims in all three patents are properly commensurate with the basic discovery or invention on which Dr. Steenbock made and the various species thereof. The claims are definite and clearly define the scope of the three inventions, having regard to the breadth and nature of the primary inventions."

District Venereal Disease Measure Awaits Approval

Endorsed by the U. S. Public Health Service and the Justice Department, legislation to tighten control of venereal disease in the District of Columbia has been drafted and is before the Budget Bureau for approval. District Corporation Counsel Richmond B. Keech has informed House District Committee Chairman Randolph, Democrat of West Virginia, that the

measure would be submitted to Congress soon, if expected approval is given. Representative Randolph previously had pointed out that the District Social Hygiene Society felt that existing health measures were "too indefinite and ineffective" for vigorous enforcement of venereal disease control measures.

Nation Supports Cancer Control Month Program

An encouraging response in National Cancer Control month is reported here. To facilitate contributions, Postmaster General Frank C. Walker reports that America's 43,000 post offices will receive envelops enclosing contributions which are simply addressed "Cancer" and will transmit them to a central point in each state. "The Postal Service welcomes the opportunity to throw its unusual resources into the fighting against cancer," Mr. Walker said. "It is perhaps true that our service is more familiar to the average citizen than any other governmental agency. The national campaign for the control of cancer, which is now under way, looks to the dissemination of information about the early symptoms of cancer, clinics for diagnosis and other health facilities available for its control. The press, radio and all other mediums are generously focusing public attention on the campaign now being conducted by the American Cancer Society and telling the public the easy way to mail contributions: 'Simply address it to Cancer, care of your local post office'."

Propose That Bethesda Hospital Be Named After Roosevelt

Naming Navy's Hospital Center at Bethesda in honor of Franklin D. Roosevelt is proposed by Representative Flood, Democrat of Pennsylvania, who says "There could be no more fitting tribute to the late beloved President, in the District area, than to name as a memorial to him the magnificent medical center at Bethesda. A great humanitarian, keenly responsive to pain and suffering in others because of his great heart as well as his own affliction, the late President also cherished the Navy and its fighting ships and brave men and women."

Community Attack on Venereal Disease Problem Proposed

A united community attack on the problems of sexual promiscuity and venereal disease is advocated by the National Women's Advisory Committee on Social Protection, reports Federal Security Administrator Paul V. McNutt. The committee conferred here with the Social Protection Division, Office of Community War Service, of the Federal Security Administration.

Capital Notes

Restrictions on production and distribution of physical therapy equipment established in limitation order L-259 have been removed, the War Labor Board reports. Also restrictions on shipments of medical x-ray equipment for civilian purposes by manufacturers have been eliminated.

In its request to citizens in this 176th week of the war, the government asked graduate registered nurses not available for military service to apply for a job in a Veterans Administration hospital, where 2,000 nurses are needed by June 30.

Señorita Anramarina Colmenares, one of Venezuela's first woman doctors, lauded American women who are aiding the medical profession and hospitals as nurses' aides. She is here as a guest of the Pan American Sanitary Bureau.

Negro physicians of Washington held a five day seminar at Howard University College of Medicine on current medical developments. The seminar was sponsored by the District of Columbia Tuberculosis Association, the District Medico-Chirurgical Society, the Social Hygiene Society and Howard College of Medicine.

Bureau of Information

ONE THIRD OF COUNTIES COMPLETE REPORTS

Ten states have completed and returned summary sheets for all their counties. Sixteen states have submitted partial returns and twenty-two states have not yet returned any material to the Bureau. The Rhode Island and the District of Columbia societies, however, are conducting local surveys and have indicated that the requested information will be forwarded to the Bureau as soon as these are completed. Word has been received that the Illinois summary sheets will be sent in shortly. Oregon has not been included in the table, since the necessary forms were mailed there only recently.

A tabulation of returns from state and county medical societies as of April 25 is presented herewith.

Returns from State and County Medical Societies

State	Number of Counties	Number of Counties Reported	Counties Unreported
County Returns Complete			
Arkansas	75	75	0
Connecticut	8	8	0
Iowa	99	99	0
Kentucky	120	120	0
Nevada	17	17	0
New Mexico	31	31	0
North Dakota	53	53	0
Ohio	88	88	0
Utah	29	29	0
Wisconsin	71	71	0
Partial County Returns			
Alabama	67	62	5
Colorado	63	19	44
Florida	67	15	52
Idaho	44	4	40
Indiana	92	53	39
Louisiana	64	32	32
Massachusetts	14	8	6
Michigan	83	31	52
Montana	56	37	19
New Hampshire	10	8	2
New Jersey	21	7	14
New York	62	3	59
South Carolina	46	23	23
Tennessee	95	57	38
West Virginia	55	34	21
Wyoming	23	13	10
No Returns Received			
Arizona	14	0	14
California	58	0	58
Delaware	3	0	3
District of Columbia	1	0	1
Georgia	159	0	159
Illinois	102	0	102
Kansas	105	0	105
Maine	16	0	16
Maryland	24	0	24
Minnesota	87	0	87
Mississippi	82	0	82
Missouri	115	0	115
Nebraska	93	0	93
North Carolina	100	0	100
Oklahoma	77	0	77
Pennsylvania	67	0	67
Rhode Island	5	0	5
South Dakota	69	0	69
Texas	254	0	254
Vermont	14	0	14
Virginia	100	0	100
Washington	39	0	39
Total	3,037	997	2,040

Inquiries from medical officers or veterans are being received by the Bureau with increasing frequency. In order to be able to supply the requested information it is essential that county summary sheets be completed and returned promptly. Already veterans have asked for information about states which have not sent in any county forms at all.

Coming Medical Meetings

New Hampshire Medical Society, Manchester, May 15. Dr. Carleton R. Metcalf, 5 S. State St., Concord, Secretary.

Rhode Island Medical Society, Providence, May 16-17. Dr. William P. Buffum, 122 Waterman Street, Providence 3, Secretary.

Official Notes

DOCTORS LOOK AHEAD

During the next four weeks Doctors Look Ahead will present the following programs:

May 5. Bewildered Parents; about children who have got their parents down; speaker, Dr. George K. Anderson, Secretary of the A. M. A. Council on Foods and Nutrition.

May 12. National Hospital Day, a program broadcast direct from the Dora De Lee Amphitheater at Chicago Lying-in Hospital, commemorating the fiftieth anniversary of that institution and looking ahead to enlarged service and research in this and similar institutions; speaker, President Robert Maynard Hutchins of the University of Chicago.

May 19. Look Sharp, a program looking toward better vision for the American people.

May 26. Unfinished Business, a program looking ahead to progress toward unsolved or partly solved problems of medicine; speaker, Dr. Morris Fishbein, Editor of THE JOURNAL and of *Hygeia*.

Doctors Look Ahead is heard on one hundred and twenty-three stations of the National Broadcasting Company network each Saturday at 4 p. m. Eastern War Time (3 p. m. Central War Time). Some stations may record the program and broadcast it at a time which suits their schedule better. Local newspaper radio announcements should be consulted.

Medical Legislation

MEDICAL BILLS IN CONGRESS

Selective Training and Service Act

Senator Ellender, April 24, offered his bill to provide for the deferment of premedical and predental students, S. 637, as an amendment to another bill that was being considered by the Senate, H. R. 2625, to extend the Selective Training and Service Act of 1940. After receiving assurances, however, of an early consideration of S. 637 by the Senate Committee on Military Affairs, Senator Ellender withdrew his amendment. A hearing on the Ellender bill has been scheduled by the committee for May 1.

The bill to insure adequate nursing care for the armed forces, H. R. 2277, has been reported favorably to the Senate by the Committee on Military Affairs, with amendments. One amendment excludes from the bill a person who has volunteered for religious service at home or abroad or who is taking theological training in order to consecrate her life to religious service. Consideration of the bill by the Senate is scheduled for the week beginning April 30.

Medical and Dental Corps

Representative May, Kentucky, has introduced a bill, H. R. 3070, providing that for the duration of the wars in which the United States is presently engaged and for six months thereafter the Secretary of War may, in his discretion, dispense with any part of the examination for promotion in the Regular Army of officers of the Medical, Dental and Veterinary Corps except those relating to physical examination. This bill will merely extend the provisions of a law enacted by the Seventy-Sixth Congress beyond the terminal date set forth in that law, May 15, 1945.

Senator Johnson, Colorado, proposes by S. 916 to remove the limitation on the right to command of officers of the Dental Corps of the Army. At the present time the right to command of dental officers is limited to the Dental Corps.

Representative Rivers, South Carolina, proposes by H. R. 2584 to provide more efficient dental care for the personnel of the United States Navy by requiring the Bureau of Medicine and Surgery to be reorganized so as to effectuate a greater integrity of the dental service. The dental functions of the bureau, it is proposed, shall be defined and prescribed to the end that the Dental Division will study, plan and direct all matters coming within the cognizance of the division. It will be specifically authorized to establish professional standards and policies for dental practice, to conduct inspections and surveys for maintenance of such standards, to initiate and recommend action pertaining to complements, appointments, advancement, training, assignment and transfer of dental personnel, and to serve as the advisory agency for the bureau on all matters relating directly to dentistry.

Physically Handicapped Persons

Senator Kilgore, West Virginia, has introduced S. J. Res. 58, providing that the first week in October of each year shall be designated as National Employ the Physically Handicapped Week. The President will be authorized and directed to issue a suitable proclamation, and governors of states, mayors of cities and heads of other instrumentalities of government, leaders of industry, educational and religious groups, labor, veterans, women, farm, scientific and professional, and all other organizations and individuals will be invited to participate in the program to enlist public support for and interest in the employment of otherwise qualified but physically handicapped workers.

Representative Randolph, West Virginia, has introduced H. R. 3067 to amend An Act to Regulate and Improve the Civil Service of the United States, by providing that no person shall be discriminated against in any case because of his or her total or partial blindness in examination, appointment, reappointment, reinstatement, reemployment, promotion, transfer, retransfer, demotion, removal or retirement, unless normal eyesight is absolutely indispensable in the doing of the physical acts to be performed.

Industrial Health

The House Committee on Labor has recently received testimony from representatives of labor organizations on the bill introduced by Representative Norton, New Jersey, H. R. 525, proposing an appropriation of $5,000,000 annually to enable the United States Department of Labor to cooperate with state agencies administering labor laws in establishing and maintaining safe and proper working conditions in industry and in the preparation, promulgation and enforcement of regulations to control industrial health hazards. Early action by the committee on this bill is anticipated.

Veterans Administration

Three recently introduced bills propose to facilitate the receipt of hospital treatment and domiciliary care by former members of the armed forces at institutions nearest their places of residence: S. 755, introduced by Senator Cordon, Oregon, H. R. 2989, introduced by Representative Huber, Ohio, and H. R. 2921, introduced by Representative Stigler, Oklahoma.

In a bill introduced by Senator Morse, Oregon, S. 850, it is proposed that the education and training provided for by the G. I. Bill of Rights shall be made available to veterans on an equal basis without regard to their age.

Miscellaneous

H. R. 2965, introduced by Representative Anderson, California, would permit the inclusion of land occupied by Dibble General Hospital within the corporate limits of the city of Menlo Park, Calif.

The name of the National Naval Medical Center at Bethesda, Md., would be changed to the Franklin D. Roosevelt Naval Medical Center under a bill introduced by Representative Flood, Pennsylvania, H. R. 2986, which is pending in the House Committee on Naval Affairs.

STATE LEGISLATION

Florida

Bills Introduced.—S. 228 and H. 309 propose to establish a college of medicine and dentistry as a part of the University of Florida. H. 276, to amend the workmen's compensation act, proposes, among other things, to require an employer to furnish to an injured workman such medical, surgical or other attendance or remedial treatment or supplies for such period as the nature of the injury or the process of recovery may require. Under the present law, apparently, the total charge against the employer for such services and supplies may not exceed $1,000.

S. 179 proposes that the responsibility for the enforcement of the laws relating to public health and to the practice of medicine, chiropractic, naturopathy, nursing and midwifery shall rest on all law enforcement officers of the state and the counties thereof and on the state board of health acting through its duly appointed agents.

Michigan

Bills Introduced.—S. 362 and H. 423 propose a system of compulsory health insurance.

New Mexico

Bill Introduced.—S. 263 proposes to authorize the public health department to work in cooperation with the Surgeon General of the United States Public Health Service and other federal agencies in connection with the survey of hospital facilities and needs of the state.

Pennsylvania

Bill Introduced.—H. 1163, to amend the law providing compensation for workmen acquiring stated occupational diseases during the course of their employment, proposes to add to the list of compensable occupational diseases infection or inflammation of the person due to bacterial or parasitic agents in any occupation involving direct contact with handling thereof or exposure to such agents, poisoning by sulfuric, hydrochloric or hydrofluoric acid, and any and all occupational diseases.

COMPULSORY HEALTH INSURANCE

Bills Considered in State Legislatures Jan. 1-April 15, 1945. Prepared by the Bureau of Legal Medicine and Legislation, American Medical Association, Chicago, April 25, 1945

A.

Bills to Provide Medical, Nursing, Laboratory, Dental and Hospital Services

State	Bill Number	Contribution	Status as of April 15
California	A. 449 (CIO Bill)	Employer, 1.5 per cent of wages; employee, same	Held in committee; probably dead
California	A. 800, S. 500 (governor's bill)	Employer, 1.5 per cent of first $4,000 paid each worker; employee, same	Held in committee; probably dead
California	A. 1260 (California Med. Assn. bill).	Varies for both worker and employer according to contract concerned	Held in committee; probably dead
California	A. 1414, A. 2129 (so-called Social Insurance Act)	Employer, 1 per cent of wages; employee, 1 per cent of wages; state, 1 per cent of wages	In committee; no other action
California	A. 1525	Employer, 1.5 per cent of wages; employee, same	In committee; no other action
California	A. 2097	Employer, 1 per cent of wages; employee, 1 per cent of wages; state, 1 per cent of wages	In committee; no other action
California	A. 2157 (so-called Optional Health Insurance Act)	Employer, 1 per cent of wages; employee, 1 per cent of wages up to $4,000	In committee; no other action
Connecticut	H. 601	Employer, 1 per cent of payroll; employee, none; state, 1 per cent of payroll	In committee; no other action
Michigan	S. 362, H. 423	Employer, 2 per cent of wages; employee, apparently none	In committee; no other action
New Mexico	H. 275	Employer, 1.5 per cent of wages; employee 1.5 per cent of wages up to $4,000	Dead
New York	A. 97	Copy of bill not available	Dead
New York	A. 141	Employer, 1 per cent of payroll; state, same; employee, none	Dead
New York	A. 260	Employer, 1 per cent of payroll; state, same; employee, none	Dead
New York	S. 336	Copy of bill not available	Dead
New York	S. 476	Employer, 1 per cent of payroll; state, 1 per cent of payroll; employee, none	Dead
Wisconsin	S. 412	Employer, 2 per cent of wages; employee, 2 per cent of wages	In committee; no other action

B.

Bills to Provide Cash Payments for Sickness—So-Called Cash Sickness Insurance

State	Bill Number	Amount of Benefits	Contributions	Status as of April 15
California	A. 1414, A. 2129	Same as unemployment compensation	Employer, 1 per cent of wages; employee, 1 per cent of wages; state, 1 per cent of wages	In committee; no other action
California	A. 1473	Same as unemployment compensation	Employer, 1.5 per cent of wages; employee, 1.5 per cent of wages	In committee; no other action
California	A. 2097	Same as unemployment compensation	Employer, 1 per cent of wages; employee, 1 per cent of wages; state, 1 per cent of wages	In committee; no other action
Colorado	S. 21	Copy of bill not available		Dead
Massachusetts	S. 86	$12-$28 per week	Employer, 1 per cent of wages; employee, 1 per cent of wages	In committee; no other action
Massachusetts	H. 372	Same as unemployment compensation	Employer, 1 per cent of first $3,000 paid employee; employee, 1 per cent of wages up to $3,000	
Massachusetts	H. 259	Same as unemployment compensation	Included in unemployment contributions	In committee; no other action
Massachusetts	H. 260	Same as unemployment compensation	Included in unemployment contributions	In committee; no other action
Massachusetts	H. 647	Copy of bill not available		In committee; no other action
Massachusetts	H. 949	Copy of bill not available		In committee; no other action
Massachusetts	H. 1410	Copy of bill not available		In committee; no other action
Minnesota	H. 786	$7-$20 weekly	Employee, 1 per cent of wages up to $3,000; employer, none	In committee; no other action
Montana	H. 301	Same as unemployment compensation	Employer, none; employee, 1 per cent of wages up to $3,000	Dead
Nevada	A. 172	$8-$18 weekly	Employee, 1 per cent of wages up to $3,000; employer, none	Dead
New Jersey	S. 27	Same as unemployment compensation	Included in unemployment contributions	Dead

C.

Bills to Authorize Study of Health Insurance System

State	Bill Number	Status as of April 15
California	A. Res. 83	Adopted 1/26/45
California	S. Con. Res. 43	In committee; no other action
Connecticut	S. 524	In committee; no other action
Maryland	H. J. Res. 13	Dead, but did pass house 3/27
West Virginia	H. Con. Res. 4	Adopted 2/15/45

D.

Bills Proposing Constitutional Amendment to Direct Enactment of So-Called Health Service System

State	Bill Number	Status as of April 15
California	S. Const. Amend. 15	In committee; no other action
California	A. Const. Amend. 29	In committee; no other action
California	A. Const. Amend. 30	In committee; no other action

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

CONNECTICUT

Service Bureau for Returning Medical Officers.—The organization of a service bureau for returning medical officers is now under way under the auspices of the Connecticut State Medical Society. It will be located and administered in the offices of the state society at New Haven and the Procurement and Assignment Service. Discharged medical officers will have access through the service bureau to factual data concerning opportunities for general or special practice in urban or rural communities, information regarding full time institutional, public health and industrial employment, and detailed intelligence on the resumption or extension of education and training. Advice and guidance concerning problems of a local nature will be available to the physician veterans at all times. Connecticut physicians who have already returned from military service will be asked to serve the bureau in an advisory capacity in order that the benefit of their special knowledge and experience may be obtained.

DISTRICT OF COLUMBIA

Award in Chemistry.—Raymond M. Hann, Ph.D., of the National Institute of Health, U. S. Public Health Service, on March 8 was presented with the Hillebrand Prize for 1944 of the Washington section of the American Chemical Society for outstanding contribution to the science of chemistry during the three preceding years. Dr. Hann received the award in recognition of his work on the chemistry, structure and synthesis of methylene and benzylidene acetals of sugar alcohols, according to *Science*.

General Ireland Honored.—A citation for distinguished service to humanity and military medicine was awarded to Major Gen. Merritte W. Ireland, formerly Surgeon General of the U. S. Army, during special ceremonies at the Medical Society of the District of Columbia, April 19. Among the speakers were Major Gen. Norman T. Kirk, Surgeon General of the Army; Vice Admiral Ross T. McIntire, Surgeon General of the Navy, and Dr. Thomas Parran, Surgeon General of the Public Health Service. The presentation was made by Dr. William M. Ballinger, acting president of the district medical society.

ILLINOIS

Public Health Meeting.—The Illinois Public Health Association will meet at the Hotel LaSalle, Chicago, May 16, and at the Hotel Abraham Lincoln, Springfield, May 17. The following program will be presented at both sessions:

Dr. Erich M. Uhlmann, Chicago, Cancer as a Public Health Problem.
Dr. Conrad S. Sommer, Chicago, Rehabilitation Program for Mental Hygiene.
Clemons M. Roark, assistant regional representative, National Housing Agency, Chicago, Housing in Illinois.
Dr. Clifton F. Hall, Springfield, Tuberculosis Control Programs in Illinois.
Dr. James G. Townsend, Bethesda, Md., Integration of Industrial Health into the Total Health Program.
Ruth Fisher, R.N., New York, What's Ahead in Public Health Nursing?
Dr. George M. Wheatley, New York, Rheumatic Fever, a Growing Public Health Problem.
Frank Stafford, U. S. Office of Education, Washington, D. C., Health, the First Objective of Education.

Dr. Leonard M. Schuman, Springfield, assistant chief, division of local health administration, and Howard J. Shaughnessy, Ph.D., president-elect, Illinois Public Health Association, Chicago, will act as chairmen. At the dinner session, Dr. Sumner M. Miller, Peoria, president of the Illinois Public Health Association, will be chairman and the speakers will include Mr. Alden B. Mills, managing editor, Modern Hospital Publishing Company, Chicago, on "Coordination of Hospital, Medical and Public Health Activities" and Dr. Reginald M. Atwater, New York, "A System of Local Health Units for the Nation."

Chicago

The Ranson Lecture.—Dr. Owen H. Wangensteen, Minneapolis, delivered the Ranson Memorial Lecture at Thorne Hall, Northwestern University, April 26, on "Studies in Etiology and Surgical Management of Ulcer." The lecture is sponsored annually by Phi Beta Pi fraternity of Northwestern University.

Arthur Compton Goes to Washington University.—Arthur H. Compton, Sc.D., professor and chairman of the department of physics and dean of the division of physical sciences, University of Chicago, and winner of the Nobel Prize for physics in 1927, has been chosen chancellor of Washington University, St. Louis. Dr. Compton was professor of physics at Washington University from 1920 to 1923.

Portrait of Ludvig Hektoen.—The fellows of the Institute of Medicine of Chicago presented an oil portrait of Dr. Ludvig Hektoen to the institute during special ceremonies April 25. The work of Carl A. E. Tolpo, the oil portrait is now hanging in the rooms of the institute, where the special program was held with Dr. William C. Danforth, president of the institute, presiding. The presentation was made by Dr. Anton J. Carlson, Frank P. Hixon professor of physiology emeritus, University of Chicago School of Medicine, and Dr. William F. Petersen gave the speech of acceptance. Jens Christian Bay, librarian of the John Crerar Library, Dr. James B. Herrick and Dr. Hektoen also spoke.

Koessler Fellowship Available.—The Jessie Horton Koessler Fellowship of the Institute of Medicine of Chicago for the aid of research in biochemistry, physiology, bacteriology or pathology will be available on September 1. The stipend is $500 a year, with the possibility of renewal for one or two years. Only such applications will be considered as are approved by the head of a department in the fields mentioned or by the director of a research institute or laboratory in Chicago and which stipulate that the recipient of the fellowship shall be given adequate facilities for carrying out the proposed research, concerning which full information is required in the application. Applications will be received up to July 1 and should be sent to Dr. Paul R. Cannon, Chairman of the Committee on the Jessie Horton Koessler Fund, 950 East 59th Street, Chicago 37. Since there are no formal blanks, application should be made by letter.

Frank R. Lillie Honored.—The Frank R. Lillie room in the Hull zoological laboratory, University of Chicago, was dedicated April 12 in tribute to Frank R. Lillie, Ph.D., Andrew MacLeish distinguished service professor emeritus of embryology at the university. The dedication ceremony was carried out with Carl R. Moore, Ph.D., chairman of the department of zoology, officiating. A portrait of Dr. Lillie, the gift of friends and painted in 1935 by Charles Hopkinson, is a feature of the room, which will be used for seminars and social gatherings. On the walls of the room also are six decorative panels of scenes of Woods Hole, Mass., where Dr. Lillie developed the Marine Biological Laboratory. Dr. Lillie, the only man ever to hold simultaneously the position of president of the National Academy of Sciences and the chairmanship of the National Research Council, was on the midway as a fellow in 1892, the year the new University of Chicago was established. With the late Charles O. Whitman, Ph.D., who established the university's department of zoology at the request of the late President William Rainey Harper, Dr. Lillie was among the first of a long line of eminent zoologists at Chicago. He succeeded Dr. Whitman as chairman of the department in 1911; he was dean of the division of biological sciences from 1931 to 1935.

INDIANA

New Executive Secretary for Lake County.—Mr. Rollis Weesner, for about twenty years associated with the attendance department of the Hammond City Schools, has been appointed executive secretary of the Lake County Medical Society. He succeeds Rollen W. Waterson, who resigned to accept a similar position with the Alameda County Medical Society, Oakland, Calif. (THE JOURNAL, March 31, p. 865).

IOWA

Harry Smith Goes to Columbia University.—Dr. Harry P. Smith, professor of pathology, State University of Iowa College of Medicine, Iowa City, has been appointed professor of pathology and executive officer of the department of pathology at Columbia University College of Physicians and Surgeons, New York. Dr. Smith has been associated with Iowa since 1930. He graduated at the University of California Medical School, San Francisco, in 1921.

Nutrition Demonstration Clinic.—Dr. Walter E. Wilkins, detailed from the U. S. Public Health Service to the nutritions program branch, Office of Distribution, War Food Administration, held a nutrition demonstration clinic at Broadlawns Polk County Hospital, Des Moines, May 3, under the auspices of the state nutrition council, the Polk County Medi-

cal Society, the Iowa State Medical Society and the state department of health. The purpose of the clinic is to give professional and other workers a more adequate concept of good and poor nutrition.

MINNESOTA

Sentenced for Narcotic Theft.—Lloyd E. Gallagher, Minneapolis, was recently sentenced by Judge Guilford in the district court of Hennepin County to serve a sentence of not to exceed seven years at hard labor in the state prison at Stillwater, following his conviction by a jury for grand larceny in the second degree arising out of a theft by Gallagher January 30 of 787 grains of morphine sulfate from the Danielson Medical Arts Pharmacy, Inc. According to the Minnesota State Board of Medical Examiners, Gallagher has a long record of narcotic violations.

Physicians Honored.—Dr. William J. Cochrane, Lake City, was honored at a meeting, April 2, for his completion of fifty years in the practice of medicine and Dr. William F. Wilson, Lake City, for his completion of fifty years as secretary of the Wabasha County Medical Society. The joint honor was a feature of a meeting sponsored by the staff of Buena Vista Sanatorium, Wabasha, whose tuberculosis commission is served as president by Dr. Cochrane, and the Wabasha-Winona county medical societies. Among the speakers were Drs. Viktor O. Wilson, Minneapolis, on "Provisions of the Revised Maternity and Infant Care Program"; Roger L. J. Kennedy, Rochester, "Multiplex Plans Proposed for the Prepayment of Medical Services," and David O. N. Lindberg, Wabasha, "A Summary of Indications for Adjunctive Surgical Therapy in Pulmonary Tuberculosis."

NEW HAMPSHIRE

State Medical Meeting.—The one hundred and fifty-fourth annual meeting of the New Hampshire Medical Society will be held at the Hotel Carpenter, Manchester, May 15, under the presidency of Dr. Fred Fernald, Nottingham. Among the speakers will be:

Dr. Henry H. Amsden, Concord, Epistaxis.
Dr. John Milne, Hanover, Infectious Mononucleosis.
Dr. Joseph S. Lawrence, Washington, D. C., director (Washington office), Council on Medical Service and Public Relations, American Medical Association, How Can Physicians Help Lawmakers?
Russell S. Spaulding, Concord, executive secretary, Blue Cross, Report on Blue Shield.
Dr. Reginald H. Smithwick, Boston, Surgical Treatment of Hypertension.
Dr. Philip D. Wilson, New York, Reconstructive Surgery of the War Wounded.
Dr. Alfred L. Frechette, Concord, Medical Relief Problems in Africa.

A feature of the meeting will be the presentation of fifty year certificates to Drs. Anna M. Littlefield, New London; William H. Mitchell, Loudon, and Henry L. Stickney, Boston.

NEW YORK

Child Guidance Institute.—On May 19 the Mental Hygiene Association of Westchester County will conduct a child guidance institute at the Sarah Lawrence College, Bronxville. The speakers will be Lois B. Murphy, Ph.D., Bronxville, on "Who are the Children Who Need Psychiatric Guidance?" Dr. Lawson G. Lowrey, New York, "Consultation and Treatment Possibilities"; Dr. Irving Edward Liss, New York, "Teachers' Problems," and Alice Kelliher, director, Walden School, New York. The Mental Hygiene Association of Westchester County was organized February 13 and was originally known as the Committee for Mental Hygiene of the Westchester County Council of Social Agencies. Constance Warren, president of Sarah Lawrence College, is president and Mrs. Ruth R. Colegrove, room 709, County Office Building, White Plains, executive secretary. One of its first activities is to work for the establishment of six tax supported mental hygiene clinics in different sections of the county under the county health department, to provide consultation and treatment for children, veterans and their families. When this is accomplished, the society hopes to continue its assistance through an advisory clinic committee. The child guidance institute is one of the many activities planned in relation to community education.

New York City

The Harvey Lecture.—Francis O. Schmitt, Ph.D., head of the department of biology and biologic engineering, Massachusetts Institute of Technology, Cambridge, Mass., will deliver the eighth Harvey Society Lecture of the current series at New York Academy of Medicine, May 17. His subject will be "Ultrastructure and the Problem of Cellular Organization."

Grant for Hodgkin's Disease.—A $5,000 grant has been given by Martha W. Hoster of Columbus, Ohio, to St. Vincent's Hospital for the Laboratory of Cellular Physiology and Pathology to conduct studies on Hodgkin's disease with collaborators at New York University, Ohio State University, Columbus, Ohio, and Walter Reed General Hospital, Washington, D. C. This fund will be administered by Dr. Antonio Rottino of St. Vincent's Hospital and Mr. Constantine G. Grand of New York University.

Physical Education Teacher Arrested for Practicing Without a License.—William James O'Connor, a physical education teacher, was arrested April 10 on a charge of unlawfully practicing medicine. Newspapers reported that he had maintained offices in various midtown hotels and prescribed treatments for wealthy patients for fees ranging from $100 to $500. A warrant for O'Connor was issued nearly a year ago in Yorkville Court but O'Connor could not be located until a state medical inspector made an appointment with him by mail through a postoffice box number in Washington. The appointment was kept April 10 and the arrest followed. The inspector said O'Connor used a stethoscope and blood pressure gage for examining him.

Meeting on Rheumatism.—The annual meeting of the New York Rheumatism Association will be held at the New York Academy of Medicine, May 9, under the presidency of Dr. Russell L. Cecil. Among the speakers will be:

Dr. John Lansbury, Philadelphia, Dietary Deficiency in the Etiology of Interstitial Calcinosis (Calcium Gout).
Dr. James A. Coss Jr., Observations on Juvenile Rheumatoid Arthritis (Still's Disease).
Drs. Hugo A. Freund and Gabriel Steiner, Detroit, Polymyositis in Rheumatoid Arthritis.
Dr. Eugene F. Traut, Chicago, Bone Marrow Findings in Arthritis.
Lieut. Col. Philip S. Hench, M. C., and Major Edward W. Boland, M. C., Rheumatic Centers of the United States Army.
Major David M. Kydd, M. C., Capt. Joseph L. Hollander, M. C., Capt. Nathan R. Abrams, M. C., and Lieut. Charles W. Fogarty Jr., M. C., Acute Arthritis Resembling Reiter's Syndrome.
Dr. Abraham S. Gordon, Brooklyn, Transmission of Gold Salts to the Fetus Through the Placenta.

Dr. Edward F. Hartung is secretary-treasurer of the association.

Postgraduate Course in Cardiology.—A postgraduate course in cardiology will be offered at Montefiore Hospital for Chronic Diseases, 150 East Gun Hill Road, in affiliation with Columbia University College of Physicians and Surgeons, June 5-August 14. Among the instructors will be Drs. Abraham Jezer, Emanuel Goldberger, Harry Gross and Joseph Ballinger. The course is designed for the general practitioner, with chief emphasis on bedside teaching and demonstration of cases to small groups of students. It will include a demonstration of cardiac fluoroscopy, of measurements of venous pressure and circulation times and discussions on criteria of classification, on correlations with pathology and on principles of treatment. This course may be taken simultaneously with elementary electrocardiography and elementary cardiovascular roentgenology. Additional information may be obtained from Dr. Willard C. Rappleye, dean, Columbia University College of Physicians and Surgeons, 630 West 168th Street, New York 32.

Personal.—Dr. Thomas M. Rivers, medical director of the Hospital of the Rockefeller Institute for Medical Research, was recently elected to honorary membership in the Royal Medical Society of Edinburgh. Dr. Rivers is now out of the United States on official duty for the U. S. Navy.——Dr. George B. Dorff, Brooklyn, retiring president of the East New York Medical Society, was recently given a special citation for his work with the selective service system of the city.——Dr. George T. Pack was recently decorated by the Brazilian government as an Officer of the Southern Cross.——Dr. Carlisle S. Boyd was recently appointed senior consulting physician and physician-in-chief emeritus of the Hospital for Special Surgery, formerly known as the Hospital for the Ruptured and Crippled. On his retirement Dr. Boyd had concluded thirty year's service with the hospital as head of the department of medicine and pediatrics (THE JOURNAL, July 29, 1944, p. 921).——Dr. Adolph G. DeSanctis has been elected an honorary member of the Bolivian Pediatric Society.

Industrial Ophthalmology in Medical Schools.—A conference in industrial ophthalmology will be held at Columbia University College of Physicians and Surgeons in conjunction with the National Society for the Prevention of Blindness, May 7-11. The course has been inaugurated in support of the government program for better visual conditions in industry. The government program was initiated by the War

Production Board and the U. S. Public Health Service in cooperation with the National Society for the Prevention of Blindness and includes as cooperating agencies the U. S. Department of Labor (Division of Labor Standards), War Manpower Commission, the Office of Vocational Rehabilitation and the U. S. Civil Service Commission. The necessity for the course arises from the present limited number of ophthalmologists available for serving industry, particularly in respect to the problems peculiar to industrial visual conditions. Members of the faculties of other medical schools have been invited in the hope of stimulating similar programs. Dr. Willard C. Rappleye, dean of the Columbia University College of Physicians and Surgeons, will open the session, which will be conducted by:

Dr. Albert C. Snell, Rochester, N. Y., Industrial Challenge to Ophthalmology.
Charles P. Tolman, New York, industrial consulting engineer, Eyesight in Industry.
Gertrude Rand, Ph.D., New York, and W. G. Darley, Illumination from the Viewpoint of Ophthalmology and of Industry, respectively.
Dr. Hedwig S. Kuhn, Hammond, Ind., Prescriptions for Occupational Glasses.
Joseph Tiffin, Ph.D., Job Analysis for Visual Requirements.
Faber Birren, New York, Use of Color for Simplifying the Visual Task.
Lieut. Comdr. Walter E. Fleischer (MC), Welding Hazards.
Dr. Leon Holland Whitney, Brooklyn, Vision, Engineering and Management.
Dr. Charles F. Kutscher, Pittsburgh, Industrial Toxic Compounds, Hazards and Treatment.
Dr. James M. Carlisle, Rahway, N. J., Industrial First Aid in Chemical Injuries of the Eye.

The program will also include a symposium on screening methods for industrial visual characteristics by Drs. Conrad Berens, New York; Joseph Lo Presti, Brooklyn, and Le Grand H. Hardy, New York.

OHIO

Bureau of Industrial Hygiene Created.—The Cleveland Bureau of Industrial Hygiene has been set up by the local division of health to help reduce health hazards in industry. The research and educational facilities of Western Reserve University School of Medicine have been made available to the new bureau, which has established quarters in room 207 at the school of medicine building on the university campus, Cleveland. The bureau was established on an order of the Cleveland welfare director as a cooperative venture of labor, industry, the medical profession and the public. Herbert G. Dyktor, former chief engineer of the bureau of industrial hygiene of the Michigan Department of Health, has been appointed director (THE JOURNAL, Sept. 16, 1944, p. 181). In the immediate future Mr. Dyktor's staff will consist of two engineers, a chemist and a secretary. As a basis for the operation of the bureau the division of health made a survey of 160,000 individuals in Cleveland manufacturing plants to determine their health status and the state of their working environment. The results of the survey have not been tabulated, although some of the more serious industrial health and accident hazards have been found to exist in newer plants that have sprung up since the war, and it is in these plants having fewer than 500 employees where the first work of the bureau will be undertaken. The survey included as one phase the filling out of questionnaires by employees regarding such things as medical examinations to which they have submitted, whether they have been examined for tuberculosis and venereal diseases and whether they were examined by a physician before going to work in their present place of employment. It is expected that much of the work of the new bureau will be educational and advisory. It will help plants in obtaining the services of physicians and nurses and in installing proper safeguards. When necessary it will use police powers of the division of health to enforce proper standards, but emphasis will be placed on lectures, movies, pamphlets and other educational work. In a statement to the press, Dr. James A. Doull, professor of hygiene and public health at the medical school, said that medical students will profit by the bureau being situated at the school, and it is hoped that the director of the bureau and members of the staff of the city division of health will contribute to instruction of the students. The bureau of industrial hygiene is an outgrowth of the cooperative effort of the health subcommittee of the mayor's war production committee, the Anti-Tuberculosis League, the U. S. Public Health Service, the Cleveland Academy of Medicine and Western Reserve University with Dr. Harold J. Knapp, commissioner of health of Cleveland. The project will aid the application of medical science to select the right man for the right job psychologically and physically.

OKLAHOMA

Personal.—Dr. Paul T. Powell, McAlester, has been named in charge of the Kay County Health Department, succeeding Dr. Joseph H. Kinnaman, who resigned to become deputy commissioner of the Nassau County Health Department (THE JOURNAL, Dec. 30, 1944, p. 1159). Dr. Jacob R. Hinshaw, McAlester, has succeeded Dr. Powell as health officer in Pittsburgh County.

Physician Hijacked.—Dr. Andre B. Carney, Tulsa, was kidnapped as he was leaving Hillcrest Memorial Hospital, February 3, shortly after midnight, according to the *Journal of the Oklahoma State Medical Association*. He was taken to the Turkey Mountain area, where he was tied to a tree. His car and money were taken. The *Journal* stated that after several hours the physician was able to free himself and walk where he could notify the police. It also stated that within the week the police captured two army deserters who were proved to be the ones responsible for the robbery and kidnapping.

Spring Clinic.—The Moton Clinical Society will conduct a spring clinic at the Moton Memorial Hospital, Tulsa, May 9-11. Among the speakers will be:

Dr. Daniel T. Rolfe, Nashville, Tenn., Vitamin Therapy in General Practice.
Dr. Walter A. Younge, St. Louis, Cardiac Emergencies.
Dr. Theodore R. Mason Howard, Mound, Bayou, Miss., Prevalence of Goiter in the Negro Race.
Dr. Ivo A. Nelson, Tulsa, Office Laboratory Procedures.
Dr. Leo Lowbeer, Tulsa, Breast Tumors.
Dr. James B. Eskridge Jr., Oklahoma City, Prenatal Care.
Dr. Grider Penick, Oklahoma City, Endocrines in Gynecology.
Dr. John F. Burton, Oklahoma City, Minor Surgery as an Office Procedure.

Dr. Rolfe will address the banquet and alumni meeting Thursday, May 10.

RHODE ISLAND

State Medical Meeting.—The one hundred and thirty-fourth annual session of the Rhode Island Medical Society will be held at the Rhode Island Medical Library, Providence, May 16-17, under the presidency of Dr. Elihu S. Wing, Providence, who will speak on "Medical Care in Rhode Island." Among the speakers will be:

Dr. Stanley P. Reimann, Philadelphia, Discussion of the Causes of Cancer.
Dr. Carl A. L. Binger, New York, Psychosomatic Medicine.
Dr. Arthur J. Geiger, New Haven, Conn., Treatment of Bacterial Endocarditis with Penicillin.
Dr. Reginald H. Smithwick, Boston, Some Experiences with the Surgical Treatment of Hypertensive Cardiovascular Disease.
Dr. Roger I. Lee, Boston, President-Elect of the American Medical Association, Geriatrics.
Dr. Elliott P. Joslin, Boston, Newer Developments in the Etiology and Treatment of Diabetes.
Dr. Frederick C. Irving, Boston, Use and Abuse of Barbiturates.
Dr. Samuel A. Levine, Boston (with four others), Coronary Artery Disease.
Dr. William R. Ohler, Boston, Clinical Application of Laboratory Facilities.
Lieut. Comdr. Jacob Gershon-Cohen (MC), and Comdr. Edgar K. Houck (MC), Derangements of the Knee Joint.
Dr. John Homans, Boston, Surgery of the Veins of the Leg—Varicosity and Some Problems in Thrombosis.
Dr. Donald G. Anderson, Boston, Clinical Uses of Penicillin.

Dr. Francis G. Blake, dean and Sterling professor of medicine, Yale University School of Medicine, New Haven, will deliver the Charles V. Chapin Oration on "Some Recent Advances in the Control of Infectious Diseases."

WEST VIRGINIA

District Health Conferences.—District conferences are being arranged by the West Virginia Public Health Association in lieu of the annual state health conference, which was canceled on account of ODT travel restrictions. The northern district meeting will be held May 21 at the Stonewall Jackson Hotel, Clarksburg, and the southern district May 28 at the Frederick Hotel, Huntington. Three topics have been selected for discussion: "Résumé of the Health Department's New Legislation" followed by a roundtable discussion of the administration of the laws, "The Pure Food and Drug Law" and "Mental Hygiene." A bill passed recently by the legislature empowers the state health commissioner to establish a bureau of mental health and to conduct mental hygiene clinics over the state. The executive committee of the public health association has announced that meetings in the northern and southern districts will also be held next fall.

Legislative Interim Committee Created.—A legislative interim committee, created for the purpose of making an overall study of public health problems, including medical and hospital care, medical care at state institutions, medical educa-

tion and prepayment hospital and medical service plans, has been named by Arnold Vickers, president of the senate, and John E. Amos, speaker of the house of delegates. The senate committee is composed of W. Broughton Johnston, Princeton; Fred C. Allen, Marlinton; Glen Jackson, Logan; G. O. Young, Buckhannon, and H. S. Boreman, Parkersburg. The house members are J. Hornor Davis, Charleston; J. Harper Meredith, Fairmont; Rush D. Holt, Weston; Everett F. Moore, Moundsville, and O. C. Hathaway, Grantsville. Speaker Amos and President Vickers will serve as members and ex officio chairman and co-chairman, respectively. An advisory committee, of which five members will be physicians, will shortly be appointed by Governor Clarence W. Meadows to serve with the legislative interim committee in this study of public health problems.

Seminars in Psychiatry Studies.—A psychiatric committee appointed recently by the president of the West Virginia State Medical Association, Dr. Thomas L. Harris, Parkersburg, is now working out a plan to hold seminars in psychiatric studies in the councilor districts. Steps have been taken to ascertain what societies will sponsor a series of meetings for a study of psychiatry as it affects the general practitioner. It is proposed to present clinical material at these meetings as the best means of teaching general practitioners what to look for and how best to handle cases that might come to their attention in the future. A special meeting was held at Huntington by the committee April 15 at which Capt. John P. Lambert, M. C., stated that the goal of the committee should be to "agree upon the best method to present to the doctors of West Virginia a common sense point of view of the meaning of psychiatry as it relates to the general practice of medicine, and to demonstrate how an understanding of psychiatry can be of inestimable value to the physician in his daily practice." The committee, which will meet again in Huntington May 20, is composed of Dr. Oscar B. Biern, Huntington, chairman; James L. Wade, Parkersburg; Edward J. Van Liere, Morgantown; Edward F. Reaser, Huntington, and Archer A. Wilson, Charleston, in addition to Captain Lambert, a member ex officio.

GENERAL

William McNett Named Art Director.—William Brown McNett, Philadelphia, has been appointed art director of the medical and scientific division of the Blakiston Company, Philadelphia. Mr. McNett has in time past served as assistant in the department of art as applied to medicine, Johns Hopkins University School of Medicine, Baltimore, and director of the department of medical art, Temple University School of Medicine, Philadelphia.

Committee Named to Aid Leprosy Program.—Luther H. Hodges, New York, vice president, Marshall Field and Company, national chairman of the postwar antileprosy program of the American Mission to Lepers, has named a sponsoring committee to work with him in promoting the program and to raise $500,000 needed. Mrs. Harper Sibley, Rochester, N. Y., is chairman of the committee. Other members of the committee include prominent physicians throughout the country.

Report on Prevention of Blindness.—The National Society for the Prevention of Blindness expended $169,578 in 1944, allowing $16,341 of the $185,919 income to be transferred to the reserve fund, according to its recently released thirtieth annual report. During the year the society sponsored three hundred and fifty broadcasts by radio stations throughout the country, produced a documentary film entitled "Eyes for Tomorrow," which was shown about six hundred times in more than twenty states, and carried on other mediums of educational activity. One of the permanent developments in the conservation of eyesight in industry is the society's participation in the drive of the War Production Board to speed up production through improvement of visual conditions in war industries.

Squibb and Ciba Prizes Announced.—The Association for the Study of Internal Secretions has announced that the Squibb Award has been given to Edward C. Kendall, Ph.D., professor of biochemistry and head of the section, University of Minnesota Graduate School, Minneapolis-Rochester, for his fundamental contributions to endocrinology, in particular the isolation of thyroxine from the thyroid gland and his recent observations on the fractionation and functions of active principles of the adrenal cortex. Dr. Kendall was president of the Association for the Study of Internal Secretions in 1930. The Ciba Award, also announced through the Association for the Study of Internal Secretions, has been given to Jane Anne Russell (Mrs. Alfred E. Wilhelmi), Ph.D., instructor in physiologic chemistry, Yale University School of Medicine, New Haven, for her fundamental observations on the role of the anterior pituitary, adrenal and thyroid glands in the absorption and utilization of sugars and starches. One prize is made available by E. R. Squibb and Sons and the other by Ciba Pharmaceutical Products. Dr. Kendall received his Ph.D. at Columbia University, New York, in 1910 and Dr. Russell from the University of California, Berkeley, in 1937.

Academy of Sciences Receives Award.—The American Design Award, presented by Lord & Taylor and consisting of a certificate and a check for $25,000, was given to the National Academy of Sciences at a luncheon, April 19, in recognition of the collective achievements of American scientists "in supplying the arsenal of democracy with the greatest war weapons the world has ever seen," according to the New York *Times*. The award particularly honored six American scientists who composed the scientific "high command" for the various government created agencies established to mobilize American brain power for the creation of new weapons, new airplanes and vehicles, new medicines, new materials and countless other victory tools, many of them still secret, that have made victory possible. At the request of these six persons the award was presented to the academy as the body that represents all scientific endeavor in America. The six persons representing this "scientific high command," are:

Dr. Vannevar Bush, Sc.D., Washington, D. C., director, Office of Scientific Research and Development.

James Bryant Conant, LL.D., Cambridge, Mass., chairman, National Defense Research Committee (absent from the luncheon because of illness).

Karl T. Compton, Ph.D., Cambridge, chief of the field service for the National Defense Research Committee.

Dr. Alfred Newton Richards, chairman, Committee on Medical Research, Office of Scientific Research and Development.

Jerome C. Hunsaker, D.Sc., Boston, chairman, National Advisory Committee for Aeronautics.

Dr. Ross G. Harrison, chairman, National Research Council, Washington, D. C.

LATIN AMERICA

Health Activities in Latin America.—*Meeting on the Prevention of Blindness.*—The Asociacion para Evitar la Ceguera en México (Mexican Society for the Prevention of Blindness) is planning to meet in Mexico City, August 13-18. Among the speakers who will address the session will be Dr. Andrew Rados, Newark, N. J., on "Heredity Anomalies of the Lens Coupled with Systemic Disturbances."

Outbreak of Cerebrospinal Meningitis.—Barbados, B. W. I., health authorities are waging a vigorous campaign to check the epidemic of cerebrospinal meningitis, which flared up after the return of a thousand agricultural contract workers from the United States. Thirty cases, 5 of which resulted in death, have been detected on the island to date. The afflicted natives are being isolated on Pelican Island.

Society News.—Dr. Gonzalo E. Arostegui was recently elected president of the Sociedad Nacional de Cirugía of Havana. Other officers include Drs. Vicente Banet, vice president, José I. Tarafa, secretary, and José Lastra, treasurer.——New officers of the Sociedad Argentina de Fisiología for 1945 include Drs. Ismael N. Hernandez, president, Oscar A. Vaccarezza, vice president, Alvaro E. Bence, secretary, and Oswaldo N. Garré, treasurer.

Visitors to the United States.—Dr. Edmundo Vasconcellos, chairman of the department of clinical surgery, Faculty of Medicine of the University of São Paulo, Brazil, went to the United States recently for a three months tour throughout the country as the guest of the Department of State. Dr. Joseph P. Buteau, Port au Prince, director of the Haitian Red Cross, is also a guest of the Department of State in the tour of certain centers in the country. Another guest is Dr. Hermán Posada González, director of the University of Antioquia, Medellín, Colombia. Dr. Desiderio Gross, Chile, has gone to New York to study heart ailments.

Traveling Health Exhibition.—The Colombian government has authorized the Cleveland Health Museum to duplicate seventy-three units of its exhibits to be used as a traveling health exhibition in Colombia. Among the group will be displays on preventive dentistry, tuberculosis, conservation of hearing and of eyesight, general biology of the human body and a complete duplicate of the nutrition exhibit "Food for Health." This nutrition exhibit was duplicated for the Mexican government in 1943. According to Dr. Ricardo Charria, Bogota, who visited the museum last year under the sponsorship of the Office of the Coordinator of Inter-American Affairs and who arranged for the exhibit, principal health hazards in Colombia are malaria, intestinal parasites and water borne diseases, tuberculosis, venereal diseases, yaws and smallpox.

Foreign Letters

LONDON

(From Our Regular Correspondent)

March 31, 1945.

The Scheme for a National Health Service: Negotiations with the Government

A year ago the government put forward proposals for a national health service which have been described in THE JOURNAL. The medical profession and particularly the British Medical Association were opposed to them. There was intense dislike of the suggestion that the work should be organized by a lay body and of any infringement of the right of private practice. A committee representing the British Medical Association, the colleges and other medical bodies was appointed for this purpose and since early in January has held nine meetings, of which eight have been attended by members of the Ministry of Health representing the government. The representatives of the profession contended that the national health service should be brought into being by stages, beginning with the development of the hospital and consultant services and with the extension of the nonhospital services on the basis of the present national health insurance system. No decision was reached on this and other points raised by the negotiating committee, which is now seeking the views of its constituents on a number of possible changes in the central and local administrative structure and other aspects of the White Paper. When the medical profession, the local authorities and the voluntary hospitals have completed this consultation with their members, the negotiations with the Ministry of Health will be resumed. Only then will the question arise of government decision on the proposals to be submitted to Parliament.

The Council of the British Medical Association has received the report of its negotiating committee and will make a full report with recommendations to a special representative meeting to be held on May 3 and 4. The report of the negotiating committee is a confidential document which cannot be published, but it has been sent to every member of the medical profession, whether a member of the British Medical Association or not. The council has also decided to request the divisions of the association to make arrangements for early meetings of the profession to discuss the report and instruct representatives. Statements have been made in the public press that the government has "surrendered to the doctors," but these are, to say the least, premature. All that can be said is that the government has not turned down the proposals made by the representatives of the profession. When it is clear that these have the support of the medical profession as a whole, the government will decide to what extent they are acceptable.

A Distinguished Medical Woman

Dr. Janet M. Vaughan, a well known hematologist, whose book "The Anemias" is in its second edition, has been appointed principal of Somerville College (a women's college), Oxford. Dr. Vaughan is medical officer in charge of the North West London Blood Supply Depot for the Medical Research Council. She was an undergraduate of Somerville College and took a first class in physiology in 1922 and her D.M. degree in 1930. She has been a Rockefeller fellow, a Beit memorial fellow and a Leverhulme fellow. She has held the post of assistant pathologist at University College Hospital, and the British Postgraduate Medical School. She was a member of the Interdepartmental Committee on Medical Schools and is a member of the Royal Commission on Equal Pay for Women and of the body appointed by the government to investigate public health in India.

PARIS

(From Our Regular Correspondent)

March 18, 1945.

Decrease of Incidence of Alcoholic Cirrhosis

Pasteur Vallery-Radot and his collaborators have recorded the number of cirrhoses of alcoholic origin admitted in the service of the medical clinic of the Bichat Hospital since 1938, when the consumption of wine and alcohols was not restricted, until 1944. The decrease between 1938 and 1944 is 87 per cent.

At the Société médicale des hôpitaux Heuyer pointed out that the number of cases of acute alcoholism, notably delirium tremens, increased suddenly in Paris during the first days of mobilization in 1939, again at the time of the German victory, during the invasion and at the exodus in May and June 1940. The maximum was observed on June 14, 1940, the day the Germans entered Paris. But during the weeks which preceded the liberation and during the days of street fighting at the end of which the Germans evacuated the capital, arrests for acute alcoholism were rare . . . not a single case was observed during August, the month of liberation. The psychoses in general and notably the alcoholic psychoses have greatly diminished in France during the course of the war.

Decourt and Phibet have made the same observations. Up to the outbreak of war in the pavilion for the mental cases in the Hospital of Saint Anthony 48 per cent were alcoholic. Since then the number of cases of alcoholic dementia has been reduced by 50 per cent.

Raynaud's Disease

De Fourmestraux reports 3 cases of pure Raynaud's syndrome in which he has obtained favorable results by repeated infiltrations of the stellate ganglion, of the cervical sympathetic chain and of the lumbar ganglions. From the rapid improvement of painful symptoms following ganglionic blockage he has concluded that functional disturbances are involved. If the initial lesions in Raynaud's disease were primarily arterial, the vasodilatation produced by the intervention would have had only a weak and temporary influence.

The removal of the stellate ganglion apparently should be reserved for the grave forms of Raynaud's disease, which are rare. The suppression of the stellate ganglion produces a Claude Bernard-Horner syndrome, which unfortunately remains permanent. It involves the disappearance of certain elements of the cervicothoracic chain: lacrimal, salivary and ocular and particularly coronary and pulmonary vasomotor fibers. Section of the splanchnic nerves and resection of the second lumbar present less inconvenience. It is advisable to consider the relative gravity of Raynaud's disease. Surgical intervention should not be resorted to until after repeated infiltrations, which will have the advantage of confirming the diagnosis and, at little expense, may lead to a cure, which may be complete.

Polyvalence of Bacterial Toxins

H. Vincent of the Académie des sciences states that the toxins secreted by pathogenic agents are usually considered specific in nature in spite of the diversity of symptoms which they cause. This view simplifies the concept of the infectious role of bacteria. The colon bacillus, for instance, secretes at least two toxins, one which becomes fixed to the intestine and another to the central nervous system. It is the same with the bacillus of typhoid, Vincent says; one of the toxins which it secretes, besides being labile, is toxic to the nervous system, and the other is a resistant enterotoxin capable of provoking in animals an acute adrenalism with renal inhibition. These toxins are further differentiated in that it is easy to produce immunization against the enterotoxin but not against the neurotoxin.

MOSCOW

(By Cable from the Soviet Scientists Antifascist Committee)

April 17, 1945.

Systematic Killing by Germans of the Mentally Deranged

Goldovsky, Colonel of Medical Service Red Army, and Pratonov, Colonel of Medical Service Red Army, have made the following report relative to a psychiatric hospital captured near Berlin:

Oberwalde Meseritz was the first psychiatric medical institution we found on the approaches to Berlin. In the buildings we found a comfortable receiving room, a splendid director's office and a number of rooms for administration with shelves full of case histories and daily reports. On the second floor were a gymnasium and a cinema. There were special x-ray rooms and laboratories. Buildings for patients contained bright wards, large and small separate rooms for one day patients, rest nooks and a dining room. Gardens were planted around some of the buildings and were surrounded by high stone walls. There were bars across the windows.

The life of the patients presented a sharp contrast to these comfortable surroundings. They wandered over the entire territory in groups and singly, carrying cups and plates, walking into kitchens in search of food and drink. They wandered from one building to another and to the offices of administration. Among them we saw neurasthenics and people suffering from Parkinson's disease, maniacs and schizophrenics. However, there were some who looked like perfectly healthy people. They helped us to bring order among the thousands of patients who had been left to the mercies of fate. There was no medical personnel. Doctors, nurses and orderlies had run away at the approach of our troops, fearing retribution for their crimes.

The first conversations revealed the mass organized destruction of patients or people considered by authorities as undesirable. We were detained in Oberwalde and saw for ourselves what had gone on in the hospital. People were questioned who had been confined to the hospital for antifascist statements and "incorrigible behavior," defiling the purity of Aryan blood. We examined the record book of patients and files of case histories. Finally we succeeded in questioning some of the culprits.

The Germans began to concentrate mentally deranged patients in Oberwalde in 1940, bringing them in groups of 100 to 300 by railroad from zones of action of allied aviation. There were times when the number of patients in the hospital reached 5,000. This flow of patients continued until January 1945, yet we found no more than 1,000. Where were the others?

A register of deaths during these years gives a detailed answer to the question. The last entry bears the number 18,232. Registered in the book for 1944 alone are the reception of 3,948 patients and the death of 3,814. If the capacity of the hospital was not overtaxed, it was due solely to this unheard of high death rate (97 per cent) in a medical institution. The files yielded copies of notices sent to relatives informing them of the death of patients and confirmed the figures precisely.

The entries showed that death resulted in the majority of cases from seven to ten days after the arrival of the patient. Causes of death are most commonly blood poisoning resulting from boils and exhaustion. Platonov, Colonel of the Medical Service, P. Shkarabsky, who is a forensic expert, and Major A. Marants, pathologic anatomist, worked to define the causes of the death in corpses exhumed. The burial ground itself was eloquent evidence. Under neat rows of gravestones creating a lyrical picture of "eternal peace" we found long pits in which four to five rows of naked bodies were piled. In rare cases pathologic anatomists found that the cause of death was tuberculosis, pneumonia or heart failure. All others were victims of "Aryan psychiatrists."

In the doctors' offices we found kilogram packages of medinal and veronal (both barbiturates) and large boxes of 100 ampules of scopolamine and morphine. Patients called these offices todzimmer (death rooms). In them systematic murder of the victims of Oberwalde was carried out.

We had our findings confirmed when we captured Rataichak, the head nurse of the women's department, in a neighboring city. Rataichak is a member of the Fascist party. With indescribable callousness she informed us: "I worked here almost twenty years. At the beginning of the war cases of killing of mentally deranged were rare. In 1941 when Walter Grabovsky was appointed director these killings became more and more frequent. True, Grabovsky was not a doctor, but he was a high official in the National Socialist Party. Head doctor Mooz, also prominent National Socialist, during his rounds would point out to the chief of the department those patients who were to be taken first to the office for treatment and then to the eighteenth department, from which corpses were taken to the graveyard. Some were buried on the premises; others were sent to Frankfort for cremation (construction of a crematorium had only been begun in Oberwalde). Poisoning in the women's department was carried out in the following manner: I took the patient to the office, took 3 tablespoons of veronal or medinal from a package and dissolved it in a glass of water. Some women had to be held by orderlies when they drank the mixture. If the patient resisted, we had to use a feeding tube. Sometimes this procedure made the patient's nose bleed. Particularly fractious patients were injected with scopolamine and morphine. Patients died quietly."

She admitted that she had personally poisoned between 1,000 and 1,500 people.

We also succeeded in finding and questioning an orderly named Gulke from the men's department. His work was to help doctor's assistant Weideman fill injection needles with a mixture of five ampules of scopolamine and five ampules of morphine and to hold the patient while this lethal dose was injected into him.

A dentist named Rosenberg, suffering from encephalitis, said "I managed to escape injection by sending for my dental equipment and treating staff and patients free."

The personal "villa" of Walter Grabovsky with secret office and personal laboratory, experimental animals, various poisons and dozens of urns of burned corpses is worthy of special detailed investigation. Everything in it confirms the stories told of him as a Fascist organizer of murder of many thousands of people. Clues led from this villa to the former place where Grabovsky worked in Kalisz. He brought with him from there a copy of the register of thousands of deaths of mentally deranged patients who had died in institutions he headed.

Marriages

JAMES A. JACKSON, Madison, Wis., to Miss Thelma Klemm of Platteville in Chicago, February 10.

ALVIN BEYER Jr., Houston, Texas, to Miss Mary Tom Luton of Grand Prairie, January 27.

GEORGE J. MALOOF to Miss Elizabeth Mary Rowley, both of Madison, Wis., December 30.

WILLIAM JAMES FINK to Miss Kay Kerlin, both of Washington, D. C., March 5.

MARIO V. BISORDI to Miss Nina Stucky, both of Mount Vernon, N. Y., April 8.

MARTIN FISHKIN to Miss Jewel Rosenthal, both of Chicago, March 10.

Deaths

Thomas Ellwood Buckman ✠ Jacksonville, Fla.; Harvard Medical School, Boston, 1917; specialist certified by the American Board of Pediatrics, Inc.; member of the American Pediatric Society, American Academy of Pediatrics and American Society for Clinical Investigation; was chairman of the public relations committee, Florida Medical Association, in 1934 and of the health committee of the Duval County Council Agencies from 1935 to 1937; member of the American Commission on Standardization of Biological Stains from 1922 to 1926 and in 1930 member of the section on hematology, White House Conference on Child Health and Development; president of the Duval County Medical Society in 1939; assistant in medicine from 1920 to 1922, assistant in pediatrics from 1922 to 1925 and instructor 1924-1925 at his alma mater; since 1926 director of infant welfare stations, city board of health; member of the Duval County Welfare Board; served during World War I; from 1922 to 1925 assistant physician, Huntington Memorial Hospital, Harvard University; from 1922 to 1925 director of the blood research laboratory and visiting pediatrician at the Boston City Hospital, where he was assistant at the Thorndike Memorial Laboratory in 1924-1925; visiting physician at the Massachusetts State Infirmary and director of laboratories at the Robert Brigham Hospital, Boston, 1924-1925; president of staff, Riverside Hospital, 1933-1934; member of the board of directors of the Hope Haven Hospital; since 1939 director of the King Edward Nursery; consultant in contagious diseases, Brewster Hospital; secretary of the staff, Duval County Hospital; visiting pediatrician at St. Vincent's Hospital, where he died March 26, aged 53, of virus infection of the intestinal tract.

Sidney Jonas Wolfermann ✠ Fort Smith, Ark.; Northwestern University Medical School, Chicago, 1911; Army Medical School, 1918; member of the House of Delegates of the American Medical Association in 1944; president of the Arkansas Medical Society, 1938-1939, councilor of the society from 1932 to 1938 and chairman of the council in 1936-1937; served as president of the Sebastian County Medical Society; councilor of the Southern Medical Association from 1939 to 1944; fellow of the American College of Surgeons; director of the Arkansas Tuberculosis Association; director and past president of the Sebastian County Tuberculosis Association; past president of the Sebastian County Crippled Children's Society; during World War I served in the medical corps of the U. S. Army; interned at St. Louis City Hospital in St. Louis; an organizer of the Cooper Clinic at Fort Smith and associated with it since its inception in 1920; director of the Hospital for Crippled Adults, Memphis, Tenn.; on the staff of St. Edward's Mercy Hospital; past president of the Fort Smith Rotary Club; died February 18, aged 56, of coronary disease.

Marcellus A. Walker, Paris, Texas; Medical Department of Tulane University of Louisiana, New Orleans, 1901; member of the American Medical Association; held all the offices of the Lamar County Medical Society at various times; formerly president of the North Texas District Medical Society; health officer of Paris from 1905 to 1913; served as physician in charge of the clinic operated by the Lamar County Tuberculosis Association from the time of its establishment until his death; member of the staff of the Lamar County Hospital, serving as president of the board of managers from the time of its organization until 1931; a charter member of the Lions Club; member and past president of the staff of St. Joseph Hospital, where he died January 23, aged 67, of cerebral hemorrhage.

Georg Barkan, Brookline, Mass.; Ludwig-Maximilians-Universität Medizinische Fakultät, Munich, Bavaria, 1917; assistant professor of biochemistry at Boston University School of Medicine; served as a surgeon in the German army during World War I; after a period of teaching and research appointments with the Universities of Munich, Würzburg and Frankfort-on-the-Main, he was appointed professor of pharmacology and director of the Pharmacologic Institute at the University of Tartu (Dorpat) in Estonia, remaining there until 1937; came to this country in 1938; contributed extensively to the European and American literature on pharmacology and biochemistry particularly in relation to the nonhemoglobin iron compounds of the blood; died March 7, aged 55.

Frederick McGregor Hartsock ✠ Colonel, U. S. Army, retired, Washington, D. C.; Columbian University Medical Department, Washington, 1897; entered the U. S. Army as an assistant surgeon in July 1898; promoted through the various ranks to that of colonel; retired on May 31, 1939; veteran of the Spanish-American War; served in the Philippines during the insurrection and was attached to the American Embassy at Peking, China; served during World War I; at one time on the staff of the United States Soldiers' Home Hospital; fellow of the American College of Surgeons; died March 7, aged 69, of biliary cirrhosis and pneumonia.

John Carl Grill ✠ Milwaukee; Medizinische Fakultät der Universität Wien, Vienna, Austria, 1921; professor and director department of pathology at the Marquette University School of Medicine; specialist certified by the American Board of Pathology, Inc.; member of the American Association of Pathologists and Bacteriologists and the American Society of Clinical Pathologists; fellow of the American College of Physicians; director of the pathologic laboratories, Milwaukee County Hospital, Wauwatosa; pathologist on the staffs of St. Joseph's and St. Mary's hospitals; died March 17, aged 52, of cerebral hemorrhage.

Frank V. Brownell, Canajoharie, N. Y.; Albany Medical College, Albany, 1882; member of the American Medical Association; in 1906 president of the Montgomery County Medical Society, which in 1934 gave a dinner in his honor celebrating his completion of fifty years of medical practice; at one time city health officer of Schenectady, where he had been on the staff of the Ellis Hospital; for many years a member of the board of education of Canajoharie; served as physician for the New York Central Railroad and for the Beech-Nut Packing Company; died March 4, aged 88, of pulmonary congestion.

Thomas Willett ✠ West Allis, Wis.; Wisconsin College of Physicians and Surgeons, Milwaukee, 1903; served overseas during World War I; lieutenant colonel, medical reserve corps, U. S. Army, not on active duty; formerly associated with the U. S. Public Health Service Reserve; at one time lecturer in histology and embryology at his alma mater; associate, American College of Physicians; member of the American Heart Association and the American Association for the Advancement of Science; a director of the Milwaukee County Bank at West Allis; died February 25, aged 67, of myocardial fibrosis.

George Henry Steinle ✠ Burlington, Iowa; St. Louis University School of Medicine, 1917; member of the American Urological Association; served during World War I; began active duty as a captain in the medical reserve corps of the U. S. Army on Dec. 12, 1940, serving as chief of the urologic section of the Station Hospital, Camp Joseph T. Robinson, Ark.; relieved from active duty on July 31, 1941; on the staffs of the Burlington Hospital, St. Francis Hospital and the Mercy Hospital, where he died February 11, aged 52, of cardiorenal disease.

William Elmer Bannister ✠ Lexington, Ky.; Kentucky School of Medicine, Louisville, 1892; past president of the Fayette County Medical Society; interned at the St. Joseph Infirmary in Louisville; member and past president of the staff of St. Joseph Hospital; member of the staff of the Good Samaritan Hospital, where he died March 1, aged 74, of angina pectoris.

Tom Randolph Barry ✠ Knoxville, Tenn.; Vanderbilt University School of Medicine, Nashville, 1915; past president of the Tennessee State Medical Association; member of the American Urological Association; fellow of the American College of Surgeons; specialist certified by the American Board of Urology, Inc.; served overseas during World War I; interned at Bellevue Hospital in New York; urologist at the Knoxville General, St. Mary's Memorial and Fort Sanders hospitals; died March 5, aged 57, of coronary occlusion.

Adelheid C. Bedal, St. Louis; Woman's Medical College of Pennsylvania, Philadelphia, 1891; member of the American Medical Association; died in the Jewish Hospital March 20, aged 84, of heart disease.

William Hurlburt Bennett, Norwell, Mass.; Baltimore University School of Medicine, 1892; member of the American Medical Association; died in Boston March 5, aged 76, of acute dilatation of the heart and diabetes mellitus.

Harvey Allen Berkey ✠ Elmhurst, Ill.; Chicago College of Medicine and Surgery, 1913; member of the American Urological Association; past president of the Chicago Urological Society; served during World War I; formerly on the staff of the Oak Park Hospital, Oak Park; died March 25, aged 72, of acute pulmonary edema.

Lewis Elmer Bratt, Akron, N. Y.; Chicago College of Medicine and Surgery, 1911; health officer of the village of Akron and town of Newstead; died in the Lockport City Hospital, Lockport, March 23, aged 63, of coronary occlusion.

Ephraim Mays Brevard, Tallahassee, Fla.; University of Maryland School of Medicine, Baltimore, 1894; member of the American Medical Association; veteran of the Spanish-American War; died February 26, aged 74, of cerebral hemorrhage, diabetes mellitus and mitral regurgitation.

Charles Franklin Brown ⊕ Salisbury, Md.; Maryland Medical College, Baltimore, 1912; died suddenly March 25, aged 62, of coronary thrombosis.

John Henderson Burlingame, Evanston, Ill.; Rush Medical College, Chicago, 1878; Civil War veteran; practiced in Cherokee, Iowa, for forty-seven years and served ten years as mayor; died March 10, aged 97, of heart failure.

John Edward Butler, Taunton, Mass.; Harvard Medical School, Boston, 1891; member of the American Medical Association; died March 9, aged 81, of arteriosclerosis.

Stephen A. Cambourn, Chicago; Northwestern University Medical School, Chicago, 1897; member of the American Medical Association; died March 8, aged 73, of obstruction of the bowel with perforation and general peritonitis.

Carl James Cannon, Cleveland; Cleveland Homeopathic Medical College, 1899; member of the American Medical Association; on the staff of the Huron Road Hospital, East Cleveland, where he died March 7, aged 69, of cardiac failure.

Sumner Coolidge, Middleboro, Mass.; Harvard Medical School, Boston, 1900; from 1905 to 1908 colonel in the army, serving as executive officer for the chief sanitation engineer for the Panama Canal; for many years medical superintendent of the Lakeville State Sanatorium; died in St. Luke's Hospital March 10, aged 85, of coronary occlusion, bronchopneumonia and cerebral embolism.

Thomas Francis Cotter ⊕ East Chicago, Ind.; Medical College of Indiana, Indianapolis, 1902; fellow of the American College of Physicians; served as an acting assistant surgeon in the U. S. Public Health Service; on the staff of St. Catherine's Hospital; died in St. Luke's Hospital, Chicago, March 12, aged 67, of pneumonia.

William Henry Crothers, Campbell, Calif.; Cooper Medical College, San Francisco, 1895; died in Saratoga February 21, aged 79, of cerebral hemorrhage.

William Parish Curtis, St. Louis; Howard University College of Medicine, Washington, D. C., 1891; on the staffs of the Homer G. Phillips' Hospital, St. Mary's Infirmary and the Peoples Hospital, where he died February 23, aged 78, of hypertension.

Joseph Henry Davis, Macomb, Ill.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1901; member of the American Medical Association; on the staffs of the Phelps Hospital and St. Francis Hospital, where he died March 4, aged 69, of sclerosis of the liver.

Lavinia R. Davis, Pulaski, N. Y.; Syracuse University College of Medicine, 1896; member of the American Medical Association; practiced in Oneida for many years; died February 8, aged 81, of cerebral hemorrhage.

Claus Gilbert Delfs, Geneva, Neb.; John A. Creighton Medical College, Omaha, 1913; on the staff of the Lutheran Hospital, York, where he died February 1, aged 51, of coronary sclerosis.

Samuel DeRamus, Cincinnati; Meharry Medical College, Nashville, Tenn., 1918; died March 8, aged 54, of heart failure and pulmonary edema.

Francis Albert Bennett Donlan, Metuchen, N. J.; University of Pennsylvania Department of Medicine, Philadelphia, 1912; member of the American Medical Association; on the staff of St. Peter's Hospital, New Brunswick, where he died February 6, aged 58, of neoplasm of the mediastinum.

James Lafayette Donnan, Ware Shoals, S. C.; University of Georgia Medical Department, Augusta, 1891; member of the American Medical Association; died February 1, aged 77, of hemiplegia.

Godlove Grover Eckhart ⊕ Marion, Ind.; Jefferson Medical College of Philadelphia, 1907; died in the Marion General Hospital February 26, aged 62, of chronic glomerular nephritis and diabetes mellitus.

Robert Hite Egbert ⊕ Martinsville, Ind.; Indiana University School of Medicine, Indianapolis, 1909; served as president of the Morgan County Medical Society; medical director of the Home Lawn Mineral Springs; died March 22, aged 60, of carcinoma of the pancreas.

Laurens Enos, Jerseyville, Ill.; the Hahnemann Medical College and Hospital, Chicago, 1891; served during World War I; died February 19, aged 82, of senility.

Eugene William Erler ⊕ South Orange, N. J.; Columbia University College of Physicians and Surgeons, New York, 1907; served on the staffs of the Presbyterian Hospital in Newark, East Orange Hospital, East Orange, and the Orange Memorial Hospital, Orange, where he died March 17, aged 62, of coronary occlusion.

Charles Cornelius Fenstermacher, Three Rivers, Mich.; College of Physicians and Surgeons of Chicago, 1893; on the staff of the Three Rivers Hospital; died March 5, aged 75, of uremia following a prostatectomy.

Edmund R. Gaddie, New Albany, Ind.; Louisville National Medical College, Medical Department State University, Louisville, Ky., 1892; died March 11, aged 74, of cerebral hemorrhage.

Louis Harrington Gibbs, Scranton, Pa.; Bellevue Hospital Medical College, New York, 1873; member of the American Medical Association; died in the West Side Hospital February 9, aged 98, of fracture of the left humerus and left femur incurred in a fall.

Clark Hutchinson Gordon ⊕ Trenton, N. J.; University of Pennsylvania Department of Medicine, Philadelphia, 1897; died February 24, aged 72, of coronary occlusion.

Wilbur Clarence Gordon, Los Angeles; Howard University College of Medicine, Washington, D. C., 1904; died February 1, aged 64, of coronary occlusion.

Elias Bush Guile, Utica, N. Y.; Homeopathic Hospital College, Cleveland, 1888; member of the American Medical Association; president of the Oneida County Historical Society; member of the city board of education; on the staff of the Utica Memorial Hospital, where he died March 28, aged 78, of cardiorenal syndrome.

Edward Humes Harris, Snow Shoe, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1900; member of the American Medical Association; surgeon for the Pennsylvania and New York Central railroads and various coal companies; died in the Bellefonte Hospital, Bellefonte, March 29, aged 70, of myocarditis.

Maxwell Herschleder ⊕ Gary, Ind.; Illinois Medical College, Chicago, 1910; owner of the Lincoln Hospital; on the staffs of the Methodist and St. Mary's Mercy hospitals; killed March 9, aged 60, when his automobile was struck by a train.

Ralph Ward James ⊕ Winfield, Kan.; Northwestern University Medical School, Chicago, 1905; fellow of the American College of Surgeons; served during World War I; visiting physician at the William Newton Memorial Hospital and St. Mary's Hospital, where he died February 2, aged 64, of cerebral hemorrhage.

Howard H. Johnson, St. Albans, Vt.; University of Vermont College of Medicine, Burlington, 1906; member of the American Medical Association; president of the staff of St. Albans Hospital; died December 23, aged 70, of injuries received in an automobile accident.

Louis Jordy, York, Pa.; Jefferson Medical College of Philadelphia, 1892; died in the York Hospital February 5, aged 76, of chronic nephritis.

Leon Lamont Kelley, Middleville, N. Y.; Syracuse University Medical College, New York, 1918; member of the American Medical Association; health officer of five communities in Herkimer County; president of the school board and the Middleville Bank; served on the staff of the Hospital of the Good Shepherd, Syracuse University and the Herkimer Memorial Hospital in Herkimer; died February 16, aged 51, of heart disease and arthritis.

Albert James Maris, Long Beach, Calif.; Medical College of Indiana, Indianapolis, 1892; died in a local hospital February 22, aged 77.

Bernard Joseph McEntee, Wilmington, Del.; University of Pennsylvania School of Medicine, Philadelphia, 1911; member of the American Medical Association; served overseas during World War I; chief of staff at St. Francis Hospital; died in St. Joseph's Hospital, Lancaster, Pa., February 24, aged 58, of bronchiectasis.

Evelyn Mae Gruhlke McLane ⊕ Jackson, Minn.; Rush Medical College, Chicago, 1930; on the staff of the Minnesota Colony, Cambridge; died February 16, aged 42.

Roy Clark Meals, Oil City, Pa.; University of the South Medical Department, Sewanee, Tenn., 1904; served during World War I; lieutenant colonel, medical reserve corps, U. S. Army, not on active duty; formerly associated with the U. S. Veterans Bureau; died December 17, aged 65, of heart disease.

Otto Ernest Meyer, Chicago; Illinois Medical College, Chicago, 1905; member of the American Medical Association; died February 19, aged 76, of mitral regurgitation.

Andrew G. Minnick, Lark Springs, Mo.; University Medical College of Kansas City, 1900; served as mayor and member of the school board; formerly county coroner; local surgeon for the Rock Island Railroad; died February 14, aged 74, of angina pectoris.

Andrew Francis Moynihan, Sauk Centre, Minn.; Minneapolis College of Physicians and Surgeons, medical department of Hamline University, 1903; served as a captain in the medical corps of the U. S. Army in France during World War I; city physician of Sauk Centre and deputy coroner of Stearns County at the time of his death; died April 11, aged 71, of cerebral hemorrhage.

John Alexander Neil, Chicago; Chicago College of Medicine and Surgery, 1910; died in Tampa, Fla., January 30, aged 65, of coronary thrombosis.

Henry Waldo Power, Conrad, Mont.; Northwestern University Medical School, Chicago, 1903; member of the American Medical Association; fellow of the American College of Surgeons; interned at the Mercy Hospital in Chicago; founded the first hospital in Conrad, which was expanded into the present St. Mary's Hospital, where he was the chief surgeon; died April 3, aged 65, of bronchogenic carcinoma.

Charles Corwin Rowley, Thompsonville, Ill.; Denver Homeopathic College, 1904; member of the American Psychiatric Association; formerly on the staffs of the Anna State Hospital in Anna and the Dixon State Hospital in Dixon; at one time prison physician at Menard; died February 23, aged 62, of cerebral hemorrhage.

William H. Shelton, Guin, Ala.; Memphis (Tenn.) Hospital Medical College, 1901; died February 1, aged 76, of carcinoma.

James Evart Derreckson Silcox, Keyport, N. J.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1907; for many years medical examiner in the Keyport schools; died February 1, aged 74, of coronary occlusion.

John William Smith, Branchville, Va.; University of Maryland School of Medicine, Baltimore, 1906; member of the American Medical Association, surgeon for the Seaboard Air Line Railway; died in Norlina, N. C., February 25, aged 73, of coronary disease (cardiorenal).

Joseph Smith ⊕ Brooklyn; Jefferson Medical College of Philadelphia, 1904; member of the American Psychoanalytic Association and the American Psychiatric Association; served as president of the Brooklyn Neurological Society; specialist certified by the American Board of Psychiatry and Neurology; on the staffs of the Jamaica Hospital, Jamaica, Kings County and Unity hospitals; died in the New York Post-Graduate Hospital, New York, February 26, aged 67, of carcinoma of the intestine.

Carl John Snitkay ⊕ Belle Plaine, Iowa; State University of Iowa College of Homeopathic Medicine, Iowa City, 1901; fellow of the American College of Surgeons; served during World War I; on the staff of the Corn Belt Hospital; died February 5, aged 70, of uremia.

Jesse Batts Sory, Fredonia, Ky.; University of Nashville (Tenn.) Medical Department, 1901; also a druggist; served during World War I; died in St. Thomas Hospital, Nashville, Tenn., February 16, aged 67, of Hodgkin's disease and bronchopneumonia.

Franklin Leroy Sterling ⊕ Bowling Green, Ohio; Ohio State University College of Medicine, Columbus, 1914; active member of the staff of Community Hospital; died in the Flower Hospital, Toledo, February 14, aged 59, of coronary occlusion.

Joseph E. Strobel, Waterford, Conn.; Temple University School of Medicine, Philadelphia, 1909; served as superintendent of the Cedarcrest Sanatorium in Hartford from March 1918 to January 1920; had been in charge of tuberculosis treatment at Grasslands Hospital, Valhalla, N. Y.; assistant superintendent of the Seaside, where he died January 30, aged 63, of coronary thrombosis.

Earl Delaskia Tanquary, Fort Scott, Kan.; College of Physicians and Surgeons, Medical Department of Kansas City University, 1901; member of the American Medical Association; served during World War I; died January 31, aged 72, of coronary occlusion.

James Edgar Woods, Atlanta, Ga.; Atlanta Medical College, 1894; served as surgeon for the Southern Railway in Jackson; died February 3, aged 76, of arteriosclerosis.

DIED IN MILITARY SERVICE

Everett Benjamin Archer, Jackson, Tenn.; University of Tennessee College of Medicine, Memphis, 1920; member of the American Medical Association; interned at St. Joseph's Hospital in Memphis; served as resident physician at the Episcopal Eye, Ear and Throat Hospital, Washington, D. C.; formerly associated with the U. S. Public Health Service; at one time on the staffs of the Davis Hospital in Statesville, N. C., McCall Hospital in Rome, Ga., the Trinity Hospital in Little Rock, Ark., and the Veterans Administration Facility in Amarillo, Texas; commissioned a major in the medical corps, Army of the United States, on Feb. 5, 1943; died in the Netherlands January 18, aged 49, of heart disease.

Hira Christopher Baker Jr., Garfield, Ark.; University of Arkansas School of Medicine, Little Rock, 1942; interned at the Pierce County Hospital in Tacoma, Wash.; appointed ensign in the U. S. Naval Reserve on March 24, 1942 and on Dec. 22, 1942 an assistant surgeon with the rank of lieutenant (jg); began active duty on July 10, 1943; on Nov. 1, 1944 appointed lieutenant in the U. S. Naval Reserve for temporary service; died Dec. 18, 1944, aged 28, when his ship, the destroyer U. S. S. *Hull,* foundered in a typhoon.

DeForest Windsor Buckmaster ⊕ Jamestown, N. Y.; University of Michigan Medical School, Ann Arbor, 1921; fellow of the American College of Surgeons; interned at Lutheran Hospital, Fort Wayne, Ind.; chairman of staff, Woman's Christian Association Hospital; member of staff, Jamestown General Hospital; commissioned a major in the medical corps, Army of the United States, on Aug. 20, 1942; died in the Walter Reed General Hospital, Washington, D. C., February 3, aged 47, of carcinoma of the urinary bladder.

William Lyman Fox, Shaker Heights, Ohio; Ohio State University College of Homeopathic Medicine, Columbus, 1917; member of the American Medical Association; served during World War I; commissioned a captain in the medical reserve corps of the U. S. Army on May 27, 1919; later promoted through the ranks to colonel; began active duty on March 1, 1941; recently assigned commanding officer of the regional army hospital at Fort Bragg, N. C.; served as commanding officer of the hospital at Camp McCain, Miss., since his return from the South Pacific; contracted dengue fever in New Guinea, where he was commanding officer of the 134th General Hospital; past president of the Reserve Officers Association of Cleveland; died in Anniston, Ala., February 27, aged 50, of cerebral hemorrhage.

Brooks Collins Grant ⊕ Colonel, M. C., U. S. Army, San Antonio, Texas; Chicago College of Medicine and Surgery, 1915; Army Medical School in Washington in 1920; fellow of the American College of Physicians; served during World War I; appointed a first lieutenant in the medical corps of the U. S. Army Oct. 4, 1919; promoted through the various ranks to that of lieutenant colonel in 1937; later promoted to colonel; had the usual variety of service including a tour of five years (1924-1929) in the Walter Reed General Hospital; in the mobilization prior to the current war was assigned to the command of the 34th Evacuation Hospital at Camp Barkeley, Texas, where he served from July 1941 to January 1942, when he was transferred to the post of Corps Surgeon, 13th Corps, at Providence, R. I., serving until June 1943; went to the European theater in August 1944 but was sent back to Walter Reed Hospital two months later when he became ill; died January 1, aged 54.

Kent Nelson ⊕ Colonel, U. S. Army, retired, Minneapolis; University of Minnesota College of Medicine and Surgery, 1900; Army Medical School in 1901; entered the U. S. Army as an assistant surgeon in 1901; rose through the ranks to that of colonel on June 29, 1927; retired Aug. 31, 1940 but returned to active duty in the same year, when he was reappointed as associate professor of military sciences and tactics and medical ROTC officer at the University of Minnesota, where in 1925 he had been medical ROTC officer and assistant professor of military sciences, serving until 1930; veteran of the Spanish-American War; served in France during World War I; formerly Seventh Corps area surgeon in Omaha; died Nov. 11, 1944, aged 68, of heart disease.

Bureau of Investigation

SECRETS FROM INDIA—VIA DENVER

Victor Croley Plays an Old Game—and Loses

India is a word full of magic. Savants refer frequently to its ancient philosophies and cults; charlatans often pretend that their "secrets" are derived from its lore. They cry their wares with hocus-pocus and mystery.

One Victor A. Croley of Denver, "Consulting Psychologist," also beguiled his fellow humans with such impressive titles as the "Hindu Company" and "Basic Science Fellowship."

Most of the self-anointed "mystics," though supposedly dwelling in a rarer atmosphere than the rest of us, promptly become alert at the mere clink of a coin. Their esoteric existence may be out of this world, but, when necessary, they can be of the earth, earthy. Otherwise Mr. Croley might never have reached the public eye.

Mr. Croley, perhaps no less astute than others who pioneered before him in the field, hit on the idea of "sex rejuvenation." Why not help the longing octogenarian to happiness and fulfilment of desire? Besides, there was money in it. The senile are ready purchasers of promised rejuvenation, with the added aura of Hindu mystery. Ordinary sex books go begging at ten cents or a quarter. A title like "The Hindu Secrets of Virility and Rejuvenation" seems to have been sure fire.

One fine day—according to accounts it was in 1939—Mr. Croley, with perhaps a few associates, who are vaguely hinted at in reports, established himself in the lucrative business of representing to restore to his fellow citizens their "Vim, Vigor and Vitality." Was he not introducing "one of Nature's great secrets"? His books "The Hindu Secrets of Virility and Rejuvenation" and "Feel Vitally Fit," said to be almost identical, were the materials of his business. What hitherto hopeless male, feeling a drab old age creeping on, could resist this appeal in Croley's advertising:

"Men! You can feel years younger. Full of new pep, vim and youthful vigor. Amazing Hindu Secrets stimulate entire system, wipe away the years, restoring former strength and health in many cases. No drugs. No operations. . . ."

"Wipe away the years" carries a stimulating picture. Boy, a towel—and presto! But wait—something still more moving follows. As if further to point a moral and adorn a tale, Croley quotes from an erotic writer of another era, "Frank Harris . . . on Impotency." "If you have tears prepare to shed them now!"—Shakespeare. Mr. Harris, reviewing the moment when he realized his own impotency, thus poured forth his bitter soul:

"Better death than such barrenness of outlook, such a dreadful, monotonous desert. Suddenly some lines came to me:

" 'Dear as remembered kisses after death,
Dear as true love and wild with all regret.
Oh death in life! The days that are no more!' "

Here is a form letter from Croley, an astounding albeit depressing revelation of occidental decadence:

"Whereas, among most Americans, impotence and loss of virility is commonplace about age 40, among the Hindus such a condition is unthinkable. Men of 70, 80, 90 and even older retain all the ardor, appetite, strength and lusty vigor of young manhood."

Then why all the ads about impotency in the India press? Mr. Croley continues:

"There are no medicines, no diets. There are no operations; no strange meditative devotions. You do not change your life in any way in using these Hindu secrets, except to include a few daily practices, so simple that after the first two or three days they become a natural part of your daily routine. Furthermore, they exhilarate you from the very first day."

A mere $3.95 and these precious secrets may be yours! You paid your money; in due time the books arrived. The "secrets"—not written in Sanskrit, either—were something of an anti-climax: no esoteric lore here from the ancient Vedas—no references to the occult Upanishads—just a simple set of physical exercises that involve various bending positions of the body in which a tensing and relaxing of the muscles are effected, along with cold baths, certain diets and other elemental hygienic instructions!

No wonder the hard-headed Post Office Department at Washington, which has seen a succession of rosy mail-order promises unfulfilled, was moved to cast a skeptical eye and to undertake an investigation. In due time Mr. Croley was summoned to a hearing at Washington. Why should his little game not be classed as a scheme to defraud and be debarred from the mails? There came a Senior Medical Officer for the Food and Drug Administration to testify for the government and discuss the general classifications of sexual impotence and their causes. Apparently unimpressed by any glamorous claims, he declared that Croley's exercises, similar to ordinary calisthenics, plus Croley's diet and other "hygienic" suggestions, would not restore sexual vigor, overcome psychic factors involved in sexual impotence or provide any means whereby the course of life in the aged can be reversed or the individual restored to the functions of youth. In fact, he attested, to follow Croley's instructions might be harmful or even deadly in some circumstances.

Croley's contention was that the exercises or "movements" described in his book "effect a mild stimulation of the glands, particularly those located in the pelvic girdle, somewhat as a rubber band can be stretched and relaxed," which stimulation, he claimed, "re-activates and restores the glands and so exerts a beneficial effect on the entire system." The medical testimony showed that, though the exercises outlined would produce a general systemic stimulation similar to other calisthenics, they could not accomplish the results that Croley claimed in his advertising.

Instead of a pot of gold at the end of this rainbow, the Post Office Department found only a scheme to obtain money by fraud. An order was entered debarring from the mails the Hindu Company, the Basic Science Fellowship, the Basic Methods Company, "Victor A. Croley, Consulting Psychologist" and plain Victor A. Croley. Too bad, Mr. Croley; it would seem to be a good time to gaze again into the crystal ball!

MISBRANDED PRODUCTS

Abstracts of Notices of Judgment Issued by the Food and Drug Administration of the Federal Security Agency

[EDITORIAL NOTE.—These Notices of Judgment are issued under the Food, Drug and Cosmetic Act, and in cases in which they refer to drugs and devices they are designated D.D.N.J. and foods, F.N.J. The abstracts that follow are given in the briefest possible form: (1) the name of the product; (2) the name of the manufacturer, shipper or consigner; (3) the date of shipment; (4) the composition; (5) the type of nostrum; (6) the reason for the charge of misbranding, and (7) the date of issuance of the Notice of Judgment.]

Allan's Gland Capsules.—Allan & Co., Inc., St. Louis, and John G. Ayars. Shipped between Sept. 18 and Oct. 1, 1941. Composition: essentially extracts of nux vomica and some organic material, with small amounts of arsenic and iodine compounds and zinc phosphide. Adulterated because below standard represented, since it did not contain zinc sulfide. Misbranded because falsely represented as a sexual stimulant and because labeling did not adequately warn against use in cases in which it would be dangerous to health.—[*D. D. N. J., F. D. C. 855; May 1944.*]

Medical Compound for Women.—Primrose R. Devore, trading as Drug Products Company, Columbus, Ohio. Shipped June 18 and Sept. 4, 1941. Composition: essentially extracts of plant drugs, including an alkaloid-bearing drug, sugar and water, preserved with benzoic acid. Misbranded because name falsely represented the product as being efficacious in the cure, mitigation, treatment or prevention of diseases of women.—[*D. D. N. J., F. D. C. 884; May 1944.*]

Mrs. Price's Special Prepared Boric Acid.—Mrs. W. T. Price, trading as Price Compound Company, Minneapolis. Shipped Sept. 16, 1942. Composition not reported. Misbranded because sold under a name recognized in the United States Pharmacopeia, and because purporting to be, and represented as, an antiseptic, and because label failed to give adequate directions for use.—[*D. D. N. J., F. D. C. 857; May 1944.*] Also misbranded under provisions of the law applicable to foods, as reported in *F. N. J. 4489.*

Valtiva.—Harlow B. and Charles E. Boyle, trading as Boyle & Co., Los Angeles. Shipped Nov. 15 and Dec. 9, 1940, and May 12, 1941. Composition not reported. Misbranded because of misleading label representations that product was rich in essential health-building vitamins, and that nervous disorders, skin troubles, loss of appetite and weight, indigestion, constipation, general weakness and ill health are commonly caused by lack of vitamins A, B_1, G and D, which this product contains.—[*D. D. N. J., F. D. C. 762; May 1944.*]

Correspondence

NOMENCLATURE OF EPILEPSY

To the Editor:—A question in Queries and Minor Notes leads me to offer the following points:

The primary manifestations of epilepsy are grand mal, petit mal and psychomotor. These may occur alone or in combination. If the possible combinations are named, four additional diagnoses would be required: grand and petit mal, grand mal and psychomotor, petit mal and psychomotor, and finally grand mal, petit mal and psychomotor. An alternate term for psychomotor is psychic equivalent, which is objectionable because of the implication that this form of seizure is not epilepsy but something like it. The same objection applies to the use of pyknolepsy as an alternate for petit mal. Like narcolepsy and catalepsy, the term pyknolepsy connotes something distinct from epilepsy. This objection is met by using the word pykno epilepsy which also appears in medical dictionaries.

To many physicians and neurologists petit mal means a small or mild seizure of any sort. A separate diagnosis for any disease condition should, however, be based on a difference in character or kind and not simply on a difference of size or degree. A mild scarlet fever is still scarlet fever, a mild grand mal is still grand mal and a mild psychomotor seizure is just that. Petit mal is different from either of these, a transient lapse of consciousness (usually only five to ten seconds long) either without accompanying muscular movements or with only rhythmic jerking (at the rate of three per second) of facial muscles. These minor episodes recur with great frequency (hence the word "pykno," "aggregated"), are relatively innocuous, are most frequent in childhood and adolescence and tend to disappear spontaneously as the person becomes adult. This is exactly what English authors have called pyknolepsy and is better called pykno epilepsy. To avoid present confusion, either the conception of petit mal as a mild seizure of any sort should be abandoned or the term petit mal itself should be dropped and the synonym pykno epilepsy adopted. On electroencephalographic as well as on clinical evidence petit mal is distinct from the two other forms of epilepsy. The pattern made by an alternate sharp dart and smooth dome, recurring approximately three per second, which always accompanies petit mal, is distinctive, probably diagnostic, of this variety of epileptic seizure. This form of seizure discharge is rarely encountered in so-called symptomatic (acquired) epilepsy.

Petit mal (pykno epilepsy) is the purest and most frequent expression of essential (genetic) epilepsy.

WILLIAM G. LENNOX, M.D., Boston.

ORAL PENICILLIN

To the Editor:—The view is generally held that penicillin is inactivated by the acid of the stomach (Rammelkamp, C. H., and Keefer, C. S.: The Absorption, Excretion and Distribution of Penicillin, *J. Clin. Investigation* **22**:425 [May] 1943) and that the drug cannot be effectively administered by the oral route unless it is given in combination with buffers (György, Paul; Vandegrift, H. N.; Elias, William; Colio, L. G.; Barry, F. M., and Pilcher, J. D.: Administration of Penicillin by Mouth, THE JOURNAL, March 17, p. 639) or in peanut oil (Libby, R. L.: Oral Administration of Penicillin in Oil, *Science* **101**:178 [Feb. 16] 1945). A simple and, as judged by clinical response, effective method of administering penicillin by mouth in my experience has been to make up 100,000 units in only 5 cc. of saline solution and then give 20,000 or 40,000 units as an oral dose of 1 or 2 cc. The administration of the dose in the relatively small volume is not irritating and apparently permits absorption of the drug in the mouth, pharynx and esophagus without the possibility of inactivation by the acid gastric juice.

CAMPBELL MOSES, M.D.
University of Pittsburgh School of Medicine.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Medical Practice Acts: Regulation Requiring Applicant to Present Transcript of School Record Unreasonable as Applied to Graduate of German School.—So far as is here material, the Illinois medical practice act provides that an applicant for examination for a license to practice medicine in all its branches, if a graduate of a medical college prior to June 3, 1923, must (1) have graduated from a medical college that as a prerequisite to graduation required a four year course of instruction of not less than nine months each and that was reputable and in good standing in the judgment of the Department of Registration and Education and (2) have completed a four year course of instruction in high school or its equivalent. (Ill. Rev. Stat. 1943, ch. 91, sec. 4.) Before being examined an applicant must submit evidence under oath to that effect satisfactory to the department (*ibid.*, sec. 2). The department by regulation requires applicants "to submit complete transcripts of medical and premedical records with applications." Schutz, a naturalized citizen of German birth, after preliminary studies in various secondary schools in Germany, pursued medical studies in several German universities from April 1906 to Jan. 15, 1912, graduating from the University of Munich on the latter date. After examination he was licensed as a physician in Germany, March 19, 1913. He was awarded an M.D. degree by the University of Breslau in 1917. In 1938 he was deprived of his license to practice in Germany solely, he alleged, "because he was a non-Aryan" and emigrated to the United States. Subsequently he sought a license to practice medicine in Illinois. Apparently while it was admitted that the schools attended and the studies pursued in Germany by Schutz were sufficient in quality and quantity to comply with the minimum requirements of the Illinois act, he was denied the right to be examined for a license because he could not comply with the rule of the department requiring the presentation of complete transcripts of medical and premedical school records. Apparently when Schutz emigrated from Germany the transcripts of his grades were confiscated by the Gestapo and it was impossible for him to secure copies of them because of that fact and because of the further fact that at the time of the application Germany was an enemy country and in any event would not permit the furnishing of any such copy of records for a non-Aryan. Schutz instituted mandamus proceedings against the director of the Department of Registration and Examination and against its superintendent to compel them to examine him. From an adverse judgment the departmental officials noted appealed to the appellate court of Illinois, first district, second division.

The question here presented, said the appellate court, is whether or not, in the light of the circumstances stated, the regulation of the department requiring applicants to submit transcripts of medical and premedical records is reasonable in its general terms and intent and, if not, whether or not mandamus will lie to compel the department to consider other competent evidence of the applicant's qualifications to be admitted to the examination. The rule is well settled that courts may review the regulations of the department of registration and education to determine whether they are fair, reasonable and impartial. The medical practice act as it relates to the appli-

cation of Schutz, who graduated from a medical school prior to June 3, 1923, provides that at the time of graduation the medical college from which he graduated must have required as a prerequisite to graduation a four year course of instruction and that the college must have been reputable and in good standing in the judgment of the department. The medical practice act specifies the number of months' school attendance required and the minimum time of the school course and prescribes minimum standards of professional education to be enforced by the department. A rule of the department provides that proof of the completion of a course of studies in a medical school and graduation therefrom shall be evidenced by a diploma which shall be submitted to the department by the applicant. Schutz completed studies at medical colleges and high schools for periods in excess of those required by the act and received diplomas which he delivered to the department. The act further requires that the applicant must be a graduate of a medical school which is reputable and in good standing in the judgment of the department. From the record before us it must be assumed that the colleges attended by Schutz were reputable and in good standing in the judgment of the department. The rule of the department provides that a diploma from such college shall evidence the fact of graduation. Thus, Schutz complied with the statutory provisions and with the rule of the department prescribing what might serve to evidence the fact of graduation. The appellants conceded that "the court may take judicial notice of the facts of current history"; that, "due to the tragic convulsions of Europe, many exiles from that unhappy continent have found asylum within the shores of the United States," and that "undoubtedly many of these refugees possess professional or other technological skill which could be exploited to the advantage of the people of the state of Illinois." Nevertheless the appellants contended that, since there are others whose lack of qualifications is such that to permit them to hold licenses to practice medicine would be highly dangerous, the department has long insisted that all candidates to practice must present certain specific credentials, which include a showing of the courses pursued in the institutions of higher learning, to be certified and authenticated by the institutions themselves and not otherwise. But, answered the appellate court, the primary purpose of the medical practice act is to safeguard the public health by prescribing standards for those who shall be permitted to treat human ailments, and the department was created to determine in the first instance whether the applicant has submitted satisfactory evidence that "he has the preliminary and professional education required by this act" (medical practice act, sec. 4) and, if so, to admit him to the examination and issue a license if he passes successfully. The proof required by the departmental regulation under discussion goes to the form rather than to the substance of the evidence submitted by the applicant as to his educational qualifications, and, if an applicant can satisfy the department as to his qualifications by other satisfactory evidence, the department should be required to consider it and not arbitrarily insist on documents which admittedly cannot be produced. Under the "best evidence rule" the highest degree of proof of which the case from its nature is susceptible must, if accessible, be produced; but where the evidence offered, while not of the highest degree or of the most satisfactory kind, is otherwise competent and is the best evidence which under the circumstances can be produced, and the absence of evidence of a higher degree or of a more conclusive character is not attributable to the fault of the party seeking to prove the fact in controversy, then the requirements of the best evidence rule are complied with and the evidence is admissible. 32 C. J. S., Evidence, sec. 777, 779, p. 701 et seq. For the department to insist on a regulation, without regard to the circumstances, which is more exacting than the commonly accepted rules of evidence under which courts operate daily is an arbitrary and unreasonable requirement.

The judgment in favor of Schutz was accordingly affirmed.—*People ex rel. Schutz v. Thompson, 59 N. E. (2d) 494 (Ill., 1945).*

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS EXAMINING BOARDS IN SPECIALTIES

Examinations of the National Board of Medical Examiners and Examining Boards in Specialties were published in THE JOURNAL, April 28, page 1148.

BOARDS OF MEDICAL EXAMINERS

ALABAMA: Montgomery, June 26-28. Sec., Dr. B. F. Austin, 519 Dexter Ave., Montgomery 4.

ALASKA: Juneau, September. Sec., Dr. W. M. Whitehead, Box 561, Juneau.

ARIZONA: * Phoenix, July 5-6. Sec., Dr. J. H. Patterson, 826 Security Bldg., Phoenix.

ARKANSAS: * *Eclectic.* Little Rock, June 7. Sec., Dr. C. H. Young, 1415 Main St., Little Rock. *Medical.* Little Rock, June 7-8. Sec., Dr. D. L. Owens, 701 Main St., Little Rock.

CALIFORNIA: *Oral.* San Francisco, May 20. *Written.* San Francisco, July 9-12. Sec., Dr. Frederick N. Scatena, 1020 N St., Sacramento 14.

COLORADO: * Denver, July 3-7. Final date for filing application is June 18. Sec., Dr. J. B. Davis, 831 Republic Bldg., Denver.

CONNECTICUT: * *Homeopathic.* New Haven, July 10-11. Sec., Dr. J. H. Evans, 1488 Chapel St., New Haven. *Medical. Examination.* New Haven, July 10-11. *Endorsement.* New Haven, July 24. Sec. to the Board, Dr. Creighton Barker, 258 Church St., New Haven.

DELAWARE: *Examination.* Dover, July 10-12. *Reciprocity.* Dover, July 17. Sec., Medical Council of Delaware, Dr. J. S. McDaniel, 229 S. State St., Dover.

DISTRICT OF COLUMBIA: * *Reciprocity.* Washington, June 11. Sec., Commission on Licensure, Dr. G. C. Ruhland, 6150 E. Municipal Bldg., Washington 1.

FLORIDA: * Jacksonville, June 25-26. Sec., Dr. Harold D. Van Schaick, 2736 S. W. Seventh Ave., Miami 36.

IDAHO: Boise, July 10. Dir., Bureau of Occupational Licenses, Miss Agnes Barnhart, 355 State Capitol Bldg., Boise.

ILLINOIS: Chicago, June 26-28. Superintendent of Registration, Department of Registration and Education, Mr. Philip Harman, Springfield.

INDIANA: Indianapolis, Aug. 28-30. Sec., Board of Medical Registration & Examination, Dr. W. C. Moore, 301 State House, Indianapolis 4.

KANSAS: Kansas City, June 28-29. Sec., Board of Medical Registration & Examination, Dr. J. F. Hassig, 905 N. Seventh St., Kansas City 10.

KENTUCKY: Louisville, June 18-20. Sec., State Board of Health, Dr. Philip E. Blackerby, 620 S. Third St., Louisville 2.

LOUISIANA: June. Sec., Dr. R. B. Harrison, 1507 Hibernia Bank Bldg., New Orleans 12.

MARYLAND: *Medical.* Baltimore, June 19-22. Sec., Dr. J. T. O'Mara, 1215 Cathedral St., Baltimore. *Homeopathic.* Baltimore, June 19-20. Sec., Dr. J. A. Evans, 612 W. 40th St., Baltimore.

MASSACHUSETTS: Boston, July 10-13. Sec., Board of Registration in Medicine, Dr. H. Q. Gallupe, 413-F. State House, Boston.

MICHIGAN: * Detroit, June 26-28. Sec., Board of Registration in Medicine, Dr. J. E. McIntyre, 100 W. Allegan St., Lansing 8.

MINNESOTA: * Minneapolis, June 19-21. Sec., Dr. J. F. DuBois, 230 Lowry Medical Arts Bldg., St. Paul 2.

MISSISSIPPI: Jackson, June 25-26. Asst. Sec., State Board of Health, Dr. R. N. Whitfield, Jackson 113.

MISSOURI: St. Louis, June 7-9. Sec., State Board of Health, Miss Erma E. Nixon, State Capitol Bldg., Jefferson City.

MONTANA: Helena. Oct. 1-3. Sec., Dr. O. G. Klein, First Nat'l. Bank Bldg., Helena.

NEVADA: Carson City, May 7. Sec., Dr. G. H. Ross, 215 N. Carson St., Carson City.

NEW JERSEY: Trenton, June 19-20. Sec., Dr. E. S. Hallinger, 28 W. State St., Trenton.

NORTH DAKOTA: Grand Forks, July 3. Sec., Dr. G. M. Williamson, 4½ S. Third St., Grand Forks.

OHIO: *Endorsement.* Columbus, July. *Examination.* Columbus, June 18-21. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.

OKLAHOMA: * Oklahoma City, June 14-16. Sec., Dr. J. D. Osborn, Jr., Frederick.

SOUTH CAROLINA: Columbia, June 25-27. Sec., Dr. N. B. Heyward, 1329 Blandina St., Columbia.

SOUTH DAKOTA: * Pierre, July 17-18. Sec., Medical Licensure, State Board of Health, Dr. Gilbert Cottam, State Capitol, Pierre.

TEXAS: Galveston, June 4-6. Sec., Dr. T. J. Crowe, 918-20 Texas Bank Bldg., Dallas 2.

VERMONT: Burlington, June. Sec., Dr. F. J. Lawliss, Richford.

VIRGINIA: * Richmond, June 20-23. Sec., Dr. J. W. Preston, 30½ Franklin Rd., Roanoke.

WASHINGTON: * Seattle, July 16-18. Sec., Department of Licenses, Miss Nell Adams, Olympia.

WEST VIRGINIA: Charleston, July 5-7. Commissioner, Public Health Council, Dr. John E. Offner, State Capitol, Charleston 5.

WISCONSIN: * Milwaukee, June 26-28. Sec., Dr. C. A. Dawson, Tremont Bldg., River Falls.

WYOMING: Cheyenne, June 4-5. Sec., Dr. G. M. Anderson, Capitol Bldg., Cheyenne.

* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

COLORADO: Denver, June 6-7. Sec., Dr. Esther B. Starks, 1459 Ogden St., Denver.

CONNECTICUT: June 9. Address State Board of Healing Arts, 250 Church St., New Haven 10.

FLORIDA: DeLand, June 1. Final date for filing application is May 17. Sec., Dr. J. F. Conn, John B. Stetson University, DeLand.

MICHIGAN: Ann Arbor and Detroit, May 11-12. Sec., Miss Eloise LeBeau, 101 N. Walnut St., Lansing.

NEW MEXICO: Santa Fe. May 6-7. Sec., Miss Marion M. Rhea, State Capitol, Santa Fe.

OREGON: Portland, July 7. Sec., Mr. C. D. Byrne, University of Oregon, Eugene.

RHODE ISLAND: Providence, May 16. Chief, Division of Examiners, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

SOUTH DAKOTA: Yankton, June 19. Sec., Dr. G. M. Evans, Yankton.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1935 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Ophthalmology, Cincinnati

28:123-242 (Feb.) 1945. **Partial Index**

Rubeosis Iridis Diabetica. F. B. Fralick.—p. 123.
Ophthalmoscopy and Diagnosis of Human Illness. A. J. Bedell.—p. 139.
Discussion of Ocular Malingering in Armed Services. A. C. Unsworth. —p. 148.
Patron Saints of Eyes: Outline. F. L. P. Koch.—p. 160.
Ocular Therapy with Penicillin Used Topically, Intraocularly and Systemically. C. A. Mietus.—p. 173.
Serologic Studies in Acute Eye Diseases. C. C. Gray and W. A. Moor.—p. 180.
Intraocular Injection of Penicillin in Ocular Infections. V. La Rocca. —p. 183.
*Congenital Cataract Following Rubella in Mother. C. A. Perera.—p. 186.
Chemotherapy in Treatment of Sympathetic Ophthalmia. A. E. Long. —p. 187.
Trichoepithelioma of Eyelid. J. E. L. Keyes.—p. 189.
Endophthalmitis Subsiding After Treatment with Penicillin. M. I. Green.—p. 191.
Luxation of Lens with Voluntary Control. O. R. Wolfe.—p. 193.
Report of Eye Injured By Lightning. L. B. Sheppard.—p. 195.

Congenital Cataract Following Rubella in Mother.—Perera directs attention to the occurrence of congenital cataract and other congenital anomalies in children born of mothers who have rubella during the first three months of pregnancy. A girl aged 4½ months was referred to him in April 1944 because of a white pupil of the right eye. The baby was born at term but at the age of 8 weeks weighed no more than at birth (6¼ pounds, or 2,840 Gm.). She had rickets and scurvy, and a spontaneous hemorrhage into her left knee joint, with subsequent abscess formation. Her parents and her 5 year old sister had "German measles" when her mother was in her second month of pregnancy. Physical examination revealed a dense central cataract of the right eye, a congenital cardiac condition (probably patent ductus arteriosus) and malnutrition.

Archives of Otolaryngology, Chicago

41:99-160 (Feb.) 1945

Osteoma of Frontal Sinus: Report of 5 Cases. J. R. Dowling.—p. 99.
Penicillin in Acute Otitis Media and Mastoiditis: Report of Case. S. Ball.—p. 109.
Ménière's Disease. R. F. Mogan and C. J. Baumgartner.—p. 113.
Thrombophlebitis of Lateral Sinus. H. Rosenwasser.—p. 117.
*Local Use of Sulfonamide Compounds in Surgical Treatment of Ear. F. W. Merica.—p. 133.
Rational Therapy in Acute Otitis Media. J. P. Rigg.—p. 137.
Importance of Pathologic Conditions of Nasopharnx to Otolaryngologist. O. R. Kline.—p. 140.
Diabetic Gangrene Involving Sinuses. B. R. Dysart.—p. 143.
Chronic Progressive Deafness, Including Otosclerosis and Diseases of Inner Ear. G. E. Shambaugh Jr. and M. H. Cutler.—p. 147.

Local Use of Sulfonamides in Surgery of Ear.—Merica thinks that the downward trend of disease of the mastoid process requiring mastoidectomy apparently can be attributed to the systemic use of chemotherapy in combating acute infections. A survey of the records in three Cleveland hospitals showed that there were 153 cases in 1937 in which mastoidectomy was performed, 134 in 1938, 121 in 1939, 79 in 1940, 82 in 1941, 65 in 1942 and 35 in 1943. Thus cases in which mastoiditis required surgical intervention have been reduced to almost one fifth in six years. Sulfanilamide powder lightly insufflated into the auditory canal after myringotomy shortens the period of drainage and helps to prevent local irritation of the canal. Chronic furunculosis of the auditory canal responds rapidly to the local use of a 5 or 10 per cent sulfathiazole ointment. During the last two and a half years the author has made it a routine practice to use sulfanilamide powder locally in ears with chronic otitis media. The type and the location of the perforation of the tympanic membrane influence the results. In the ears most amenable to treatment there usually is a large, centrally situated perforation. Ears in which there is a marginal or an attic perforation, usually small, with a foul thin purulent discharge and evidence of cholesteatomatous or other débris are much more resistant to treatment. The local use of sulfonamide compounds has greatly shortened the postoperative course after simple mastoidectomy. The author believes that it is justifiable to close a simple mastoidectomy wound completely after local use of sulfanilamide. The action of the drug and the purpose for which it is used are frustrated if a drain is used. If there is no sudden unexplained rise in temperature, the dressing should be left four to six days without changing. Contamination in such wounds is always introduced from the outside. There is some difference of opinion as to the best drug to use, but sulfanilamide is probably preferable among those now available.

Journal of Clinical Investigation, Boston

24:1-126 (Jan.) 1945. **Partial Index**

Nature of Mechanism of Shock Produced by Injection of Trypsin and Thrombin. H. J. Tagnon.—p. 1.
Plasma Volume and "Extravascular Thiocyanate Space" in Pneumococcus Pneumonia. D. D. Rutstein, K. J. Thomson, D. M. Tolmach, W. H. Walker and R. J. Floody.—p. 11.
Studies on Creatinuria Due to Methylated Steroids. L. Wilkins and W. Fleischmann.—p. 21.
Cold Hemagglutination and Cold Hemolysis: Hemolysis Produced by Shaking Cold Agglutinated Erythrocytes. D. Stats.—p. 33.
Plasma Fibrinogen Increasing Factor Obtained from Sterile Abscesses in Dogs. F. Homburger.—p. 43.
Electrophoretic Analysis of Maternal and Fetal Plasmas and Serums. L. G. Longsworth, R. M. Curtis and R. H. Pembroke Jr.—p. 46.
Traumatic Shock: IX. Pressor Therapy: Effect of Paredrine (P-Hydroxy-A-Methylphenylethylamine Hydrobromide) on Circulation in Hemorrhagic Shock in Dogs. H. A. Frank, M. D. Altschule and N. Zamcheck. —p. 54.
Renal Humoral Pressor Mechanism in Man. L. Dexter, Florence W. Haynes and W. C. Bridges.—p. 62.
Plasma Protein and Hemoglobin in Protein Deficient Rat: Three Dimensional Study. J. Metcoff, C. B. Favour and F. J. Stare.—p. 82.
Absence of Clinical Disease in Spite of High Incidence of Carriers of Group Hemolytic Streptococci of Single Type: Failure of Tyrothricin to Influence Carrier Rate. G. Hartley Jr., J. F. Enders, J. H. Mueller and E. B. Schoenbach.—p. 92.
Effect of Biliary Fistula on Bromsulphalein Retention, Serum Phosphatase and Bile Phosphatase. V. A. Drill, J. A. Annegers, E. F. Snapp and A. C. Ivy.—p. 97.
Measurement of Cardiac Output in Man Using Technic of Catheterization of Right Auricle or Ventricle. A. Cournand, R. L. Riley, E. S. Breed, E. deF. Baldwin and D. W. Richards Jr., with technical assistance of M. S. Lester and M. Jones.—p. 106.
Probable Errors in Simultaneous Measurement of Separate Kidney Functions. C. Klopp, N. F. Young and H. C. Taylor Jr.—p. 117.
Importance of Rh Inhibitor Substance in Anti-Rh Serums. L. K. Diamond and N. M. Abelson.—p. 122.

Journal of Experimental Medicine, New York

81:151-232 (Feb.) 1945

Anaerobic Glycolysis of Brain in Experimental Poliomyelitis. H. G. Wood, I. I. Rusoff and J. M. Reiner.—p. 151.
*Virus Neutralizing Action of Serum from Mice Infected with Poliomyelitis Virus. G. C. Brown and T. Francis Jr.—p. 161.
Eck Fistula Liver Subnormal in Producing Hemoglobin and Plasma Proteins on Diets Rich in Liver and Iron. G. H. Whipple, Frieda S. Robscheit-Robbins and W. B. Hawkins.—p. 171.
Preparation and Properties of Influenza Virus Vaccines Concentrated and Purified by Differential Centrifugation. W. M. Stanley.—p. 193.
Blood Vessels in Fat Tissue: Relation to Problems of Gas Exchange. I. Gersh and Mary A. Still.—p. 219.

Virus Neutralizing Action of Serum from Mice Infected with Poliomyelitis Virus.—Brown and Francis present evidence that the serum of mice paralyzed with the Lansing strain of poliomyelitis virus possesses the capacity to protect normal mice against the same virus when mixtures of virus and serum are inoculated intracerebrally. The virus neutralizing action was present mainly in mice paralyzed between the third and sixth days following inoculation and was rarely demonstrable in the serum of mice developing paralysis more than ten days after inoculation. Serum from nonparalyzed mice had approximately the same neutralizing capacity when obtained during the same period following inoculation in which serum from paralyzed mice showed the greatest effect. Neutralization of the virus was not obtained with serum from normal mice or from mice inoculated with normal nervous tissue.

Journal of Immunology, Baltimore

50:1-60 (Jan.) 1945

Electrophoretic, Ultracentrifugal and Immunochemical Studies on Wassermann Antibody. B. D. Davis, D. H. Moore, E. A. Kabat and A. Harris.—p. 1.
Drying by Sublimation. E. W. Flosdorf, L. W. Hull and S. Mudd. —p. 21.
Serologic Agglutination of Virus-Coated Bacterial Cells: Technic of B. A. Method. E. C. Roberts.—p. 55.

Journal of Nervous and Mental Disease, New York

101:99-204 (Feb.) 1945

Neuro-Optic Myelitis: Clinicopathologic Study of 2 Related Cases. H. Kohut and R. B. Richter.—p. 99.
Question of Shorter Courses of Electroshock Therapy in Depressions. N. Savitsky and S. Tarachow.—p. 115.
Definition of Psychopathic Personality. H. F. Darling.—p. 121.
Psychosomatic Aspects of Stuttering. B. C. Meyer.—p. 127.
Five Psychotic Sisters. L. A. Osborn.—p. 158.

Kansas Medical Society Journal, Topeka

46:1-36 (Jan.) 1945

Primary Atypical Pneumonia: Report of 25 Cases, with Discussion of Pathogenesis. J. W. Cooch.—p. 1.
Cancer Education for Layman. C. C. Nesselrode.—p. 7.

46:37-72 (Feb.) 1945

*Diagnosis and Treatment of Tumors of Testis. C. A. Hellwig.—p. 37.
Aspiration Pneumonia with Beginning Lung Abscess Treated with Penicillin. R. R. Snook.—p. 40.
Tuberculous Gingivitis, with Report of Case. E. W. Johnson Jr.—p. 42.

Tumors of Testis.—Hellwig states that of 254 specimens received at his laboratory with the clinical diagnosis tumor of the testis 50 proved to be of a malignant nature. He thinks that any noninflammatory mass of the testis should be considered as a malignant neoplasm until proved otherwise. The preoperative diagnosis of malignant tumors of the testis is often impossible. Aspiration biopsy is uncertain and diagnostic palpation of the tumor should be done as gently as possible. The diagnostic value of the Aschheim-Zondek test is limited. A positive test may be the only evidence of the disease; a negative test does not rule out cancer. The value of preoperative x-ray treatment has not been established and the effect of postoperative irradiation is not sensational. The most important factor in determining the prognosis is the absence or presence of metastasis at the time of orchiectomy. As long as the tumor is confined to the testis itself there is an excellent chance of complete cure.

Maine Medical Association Journal, Portland

36:19-36 (Feb.) 1945

Recent Developments in Treatment of War Casualties. D. W. Lyon. —p. 19.
According to Their Lights: Annual Oration—Portland Medical Club. W. E. Tobie.—p. 23.

Medical Annals of District of Columbia, Washington

14:1-48 (Jan.) 1945

National Program for Physical Fitness. L. G. Rowntree.—p. 1.
Physical Rehabilitation of Veterans. C. R. Brooke.—p. 6.
Reconditioning in Civilian Hospitals. H. B. Gwynn.—p. 12.
Aviation Preventive Medicine. D. N. W. Grant.—p. 18.

14:49-102 (Feb.) 1945

Some Medical Aspects of Inflammatory Lesions of Lower Gastrointestinal Tract. J. T. Howard.—p. 49.
Future of Our Coronaries. H. M. Odel.—p. 57.
*Diabetes Tomorrow. E. P. Joslin, H. F. Root, Priscilla White, E. P. Sheridan and C. C. Bailey.—p. 63.
Electric Convulsive Therapy in Psychoneuroses. L. B. Kalinowsky. —p. 70.
Maxillofacial Injuries. G. W. Christiansen.—p. 76.

Diabetes Tomorrow.—Joslin and his associates think that a consideration of the future for diabetes must be based on the startling increase in the number of persons with diabetes in the population. Three causative factors are evident: (1) more intensive search for and discovery of cases by better methods, (2) the aging of the population and (3) the prolongation of diabetic lives as the result of better treatment. Formerly diabetes beginning before the age of 15 years was fatal in less than two years. Now with insulin such patients live long. Actually among 1,657 children seen and treatment begun since the discovery of insulin in 1922 only 137 have died. In the first seven years of this period 82 per cent of the deaths were due to diabetic coma, whereas the incidence of deaths in the last few years has fallen to only 18 per cent. Diabetic coma is preventable, but it continues to be a major cause of death. An analysis of 601 coma cases treated at the New England Deaconess Hospital between 1923 and 1944 has convinced the authors that it is the amount of insulin given in the first three hours of treatment which is of primary importance in determining the recovery or the death of the patient. Among 478 patients in coma treated from 1923 to 1940, 12 per cent died. When the insulin given in the first three hours of treatment was increased from 83 units to an average of 216 units among 123 consecutive cases treated between August 1940 and May 1, 1944 the mortality was only 1.6 per cent. Important aids in treatment are (*a*) the use of isotonic solution of sodium chloride intravenously or subcutaneously (4,000 cc.) or, when necessary to overcome shock and impending anuria, up to 10 per cent or even 15 per cent of body weight and (*b*) gastric lavage. The administration of glucose is harmful in diabetic coma. There has been improvement in the treatment of juvenile and pregnant diabetic patients.

Military Surgeon, Washington, D. C.

96:121-208 (Feb.) 1945

Problem of Morale. G. B. Chisholm.—p. 121.
Prevention of Malaria in U. S. Army. J. S. Simmons.—p. 123.
Treatment of Gonorrhea and Syphilis in United States Army. H. J. Morgan.—p. 127.
Civil Public Health in Overseas Theaters of Operations. T. B. Turner and G. W. McDonald.—p. 131.
Relationships of Neuropsychiatry to General Medicine and Surgery in Army. W. C. Menninger.—p. 134.
Burns. F. L. Conklin.—p. 139.
North African-Italian Theater. E. W. Cowan.—p. 142.
Rehabilitation by Army Dental Corps. J. C. Brauer.—p. 145.
Observations on Coccidioidin Skin Test. G. Cheney and E. J. Denenholz.—p. 148.
Acute Appendicitis in Middle East. N. J. Kirk.—p. 156.
Duty Status Treatment of Acute Gonorrhea. D. W. Atcheson.—p. 159.
Inspection of Fish of Pacific Northwest. E. W. Bloomquist.—p. 164.
*Treatment of Sprains with Ethyl Chloride Spray. R. Bingham.—p. 170.
Diagnosis of Fractures of the Ribs, Scapula, Sternum and Mandible. J. W. Lewis.—p. 175.
Gait and Soldier: Importance of Gait in Prevention and Cure of Foot Strain and in Treatment of Symptomatic Flat Feet. J. Hartley. —p. 177.

Treatment of Sprains with Ethyl Chloride Spray.—Treatment of sprains and minor injuries in which the skin is not broken, by means of surface anesthesia combined with active motion, is an effective method of therapy. The ethyl chloride spray is more advantageous than injection of procaine hydrochloride. The technic is simpler and requires no special instruments, sterilization or special surgical skill. There are no systemic after-effects and no danger of introducing infection into the injured area from the needle or skin. Large painful areas can be treated. The one possible complication is frostbite, which can be prevented by application of camphor liniment to the skin after spraying. A mild reactive hyperemia seems to improve the local circulation and is followed by a decrease in the swelling of the joint. The patients secure symptomatic relief and a return of useful function to the injured part. The immediate recovery varies from 60 to 90 per cent, depending on the severity and duration of the injury. Disability averages less than three days. No strapping with adhesive tape or the application of plaster casts is required. The treatment will not mask fractures, severe deep tissue injury or disease. In this respect it is superior to the injection of a local anesthetic. The treatment is simple and not expensive, and disability and hospitalization are reduced.

New Jersey Medical Society Journal, Trenton

42:1-36 (Jan.) 1945

Acute Septicemia with Adrenal Hemorrhage (Waterhouse-Friderichsen Syndrome): Report of 4 Cases with 2 Recoveries. G. Ginsberg and W. P. Braunstein.—p. 7.
Venereal Diseases Among Migrant Farm Laborers of New Jersey. G. S. Usher and H. Cowan.—p. 11.
Reduction in Total Skin Flora by Daily Use of Soap Containing Dihydroxy Hexachloro Diphenyl Methane. H. J. Udinsky.—p. 15.
Psychiatry in Postwar Era. J. G. Sutton.—p. 18.

New Orleans Medical and Surgical Journal

97:335-382 (Feb.) 1945

Syphilis: The Great Masquerader. J. A. Kolmer.—p. 335.
Important Considerations in Cataract Surgery. G. M. Haik.—p. 345.
Sinus Disease Producing Monocular Proptosis, with Case Reports and with Special Reference to Mucocele (Pyocele). L. W. Alexander. —p. 351.
*Rocky Mountain Spotted Fever: Differentiation from Typhus Fever and Report of Case. R. L. Pullen, W. A. Sodeman and G. Felknor. —p. 359.
Food Poisoning. G. H. Hauser.—p. 362.

Rocky Mountain Spotted Fever.—According to Pullen and his associates 145 cases of endemic (murine) typhus were observed in a ten year period at Charity Hospital in New Orleans and only 1 case of Rocky Mountain spotted fever. The pathologic changes in the two diseases are essentially the same, consisting of an acute endangiitis of the small blood vessels throughout the body, particularly in the brain and skin. In Rocky Mountain spotted fever there is usually a more severe lesion in the vessels and a greater enlargement of the spleen, as well as a greater tendency to gangrene. In spotted fever the rickettsias invade the smooth muscles of the media of the blood vessels, in typhus the endothelium. Hence thrombotic lesions in spotted fever are generally more severe than in typhus fever, and necrosis of fingers, toes, face, ears, scrotum and vulva may occur. The rash of spotted fever appears earlier in the illness, often within twenty-four to forty-eight hours after the onset, and it is usually more hemorrhagic and purpuric in nature. The rash of spotted fever tends to appear first on the back, wrist and ankles, with early involvement of the palms of the hands and soles of the feet. Later the forehead, arms, legs, chest and abdomen are affected. In endemic typhus the rash usually appears first on the chest and upper part of the abdomen, and involvement of the face, wrists, ankles, palms and soles rarely occurs. Neither the nature of the lesions nor their localization can be relied on absolutely for differentiation. The diagnosis must be based on laboratory evidence, such as the specific complement fixation test, skin biopsies, animal inoculations and cross immunity tests, and protection tests. It is not unlikely that more instances of this disease will be found if the disease is considered in the differential diagnosis of acute infectious diseases with exanthematous manifestations, and specimens of blood are sent to diagnostic centers for study.

Public Health Reports, Washington, D. C.

60:85-116 (Jan. 26) 1945

Free plasma for North Dakotans. M. E. Koons.—p. 85.
Wartime Nursing Care in Representative General Hospitals. M. E. Altenderfer.—p. 90.

60:117-144 (Feb. 2) 1945

Mass X-Ray Survey in San Antonio. D. M. Gould.—p. 117.
Inactivation of Malaria Parasites by X-Rays. B. E. Bennison and G. R. Coatney.—p. 127.
Outward Opening, Combination Storm and Screen Door. R. E. Dorer. —p. 132.

60:145-172 (Feb. 9) 1945

Sickness Absenteeism Among Industrial Workers, Third Quarter of 1944. W. M. Gafafer.—p. 145.
*Production of an Antibiotic Substance Similar to Penicillin by Pathogenic Fungi (Dermatophytes). S. M. Peck and W. L. Hewitt.—p. 148.

60:173-200 (Feb. 16) 1945

Location and Movement of Physicians, 1923 and 1938—Changes in Urban and Rural Totals for Established Physicians. J. W. Mountin, E. H. Pennell and G. S. Brockett.—p. 173.
Inoculation of Chick Embryos with Sporozoites of Plasmodium Gallinaceum by Inducing Mosquitoes to Feed Through Shell Membrane. V. H. Haas and F. M. Ewing.—p. 185.

60:201-228 (Feb. 23) 1945

Cultivation of Mumps Virus in Developing Chick Embryo and Its Application to Studies of Immunity to Mumps in Man. K. Habel. —p. 201

Antibiotic Substance Similar to Penicillin in Pathogenic Fungi.—Peck and Hewitt state that the occurrence of antibiotic substances has been noted previously in only one species of pathogenic fungi, namely Aspergillus fumigatus. They investigated a number of fungi for the existence of antibiotic substances. A strain of Trichophyton mentagrophytes which was isolated from the arm of a patient presenting a clinical case of dermatophytosis was found to produce an antibiotic substance. This fungus was used for most of the experiments. A survey was made to determine how uniformly the ability to produce an antibiotic factor occurred among other dermatophytes. Several members of the group of fungi occurring in clinical lesions of dermatophytosis were found to elaborate a factor antagonistic to certain other micro-organisms. This factor appeared to be similar to penicillin in the following respects: (*a*) enhanced production on mediums containing cornsteep liquor, (*b*) spectrum of activity and behavior toward penicillin resistant organisms, (*c*) sensitivity to p_H and temperature and (*d*) destruction by clarase.

Surgery, Gynecology and Obstetrics, Chicago

80:113-224 (Feb.) 1945

*Endometriosis of Bladder and Ureter. V. J. O'Conor and J. P. Greenhill.—p. 113.
Rapid Repair of Defect of Femur by Massive Bone Grafts After Resection for Tumors. D. B. Phemister.—p. 120.
*Androgen Control Therapy in 130 Cases of Carcinoma of Prostate. C. C. Herger and H. R. Sauer.—p. 128.
Vitamin Studies in Abortions. W. E. King.—p. 139.
Effect of Sulfanilamide and Sulfathiazole on Human Tissue. J. L. Posch, M. E. Maun, M. A. Pilling and J. W. Hirshfeld.—p. 143.
Pancreaticoduodenectomy for Primary Carcinoma of Duodenum. T. G. Orr and G. A. Walker.—p. 149.
Congenital Anomalies in Region of Umbilicus. H. L. Trimingham and J. R. McDonald.—p. 152.
Surgery in Obstinate Megacolon: Radical One Stage Resection and Ileosigmoidostomy. K. S. Grimson, H. N. Vandergrift and H. M. Dratz. —p. 164.
Skin Bacteria: Their Location with Reference to Skin Sterilization. D. L. Lovell.—p. 174.
Influence of Thyroid Principle on Prothrombinopenic Action of Dicumarol. K. G. Wakim, K. K. Chen and W. D. Gatch.—p. 178.
*Hemorrhagic Shock: Relative Effect of Amino Acids, Amigen and Gelatin in Dogs. R. J. Nicholl, W. F. Boucher and R. W. Prince. —p. 181.
Use of Red Cells in Transfusion Therapy. A. P. Falkenstein.—p. 187.
Hepaticoduodenal Intubation with Hepatoduodenostomy for Traumatic Stricture of Hepatic Duct. R. Colp.—p. 190.
Use of Identifying T Tube in Common Bile Duct in Gastric Resection for Duodenal Ulcer Adherent to Bile Ducts. F. H. Lahey.—p. 197.
Aseptic Necrosis of Capital Femoral Epiphysis Following Adolescent Epiphyseolysis. R. D. Moore.—p. 199.
Hodgkin's Disease of Breast. F. E. Adair, L. F. Craver and Julian B. Herrmann.—p. 205.
Pregnancy Associated with Carcinoma of Large Intestine. E. A. Banner, A. B. Hunt and C. F. Dixon.—p. 211.

Endometriosis of Bladder and Ureter.—A review of the subject of endometrial invasion of the bladder and ureter by O'Conor and Greenhill suggests that, while these cases are probably rare, they are more common than the literature would indicate. Vesical endometriosis seems to be always secondary to pelvic endometriosis that has extended into the bladder from affected contiguous organs. Only 58 authentic instances have been recorded. The authors report 2 cases that they observed. Subjective bladder symptoms are variable. Cyclic disturbance was recorded in only two thirds of the patients. The most constant symptom seems to be a sense of pressure or weighty discomfort in the vesicovaginal region. The cystoscopic appearance of endometriosis of the bladder may or may not be similar to the appearance of a "chocolate cyst" of the ovary. In many instances the mucosal changes have been reported as cyclic in character. In other instances the appearance is not unlike that of a chronic inflammatory lesion or an early area of infiltrating carcinoma. In the described case with vesical endometriosis the cystoscopic appearance of the lesion was so typical as to leave no doubt as to the cellular nature of the invasion. Removal of the ovaries or the arrest of their function usually causes an abrupt ending of the disease. Occasionally removal of the ovaries does not arrest the disease. In younger women, in whom one should make an effort to preserve as much ovarian tissue as possible, localized excisions of involved areas should be practiced. Unfortunately, in these patients recurrences are not uncommon and further surgery may be necessary. The second case reported here is noteworthy because it was one of intraureteral endometriosis, only 1 other case of this type having been reported before. The patient, a woman aged 50, recovered

following removal of the ureter and kidney. The authors emphasize the importance of recognizing vesical and ureteral endometriosis in the differential consideration of tumors of the bladder and ureter.

Androgen Control in Carcinoma of Prostate.—Herger and Sauer employed castration singly or in combination with diethylstilbestrol medication in treating patients with demonstrable metastasis or with rapidly progressing lesions. Exclusive administration of diethylstilbestrol, usually in doses of 1 mg. daily, was reserved for patients with low grade malignant tumors with no demonstrable metastasis, in whom little progression was anticipated. Diethylstilbestrol alone was given also to patients who refused or who were unsuitable for orchiectomy. Obstructive symptoms were treated by the usual methods, such as the indwelling catheter, suprapubic cystostomy or transurethral resection. Orchiectomy alone was carried out on 26 patients, 19 of whom had metastasis. In 48 other patients, 35 of whom had metastasis, castration was either preceded or followed by administration of diethylstilbestrol. The remaining 56 patients received exclusive diethylstilbestrol medication; metastasis was found in 11 of these cases. Analyzing the results obtained in their 130 cases, the authors say that favorable response was accomplished in numerous instances. Prolonged observation revealed that in a considerable number initial improvement developed into delayed failures. Even the most spectacular improvement has to be viewed with skepticism as to the ultimate outcome. Androgen control treatment has prolonged the lives of patients with far advanced or metastatic disease. The response to this treatment is much more impressive than the poor results accomplished by external or interstitial irradiation. Although improvement is of temporary duration, the simplicity of the method and the low surgical risk involved justify its use in combination with the usual methods in the treatment of high grade urinary obstruction. The results were most favorable in cases of metastatic lymph node involvement. Spread or local extension of bone metastasis is not arrested by androgen control treatment. Furthermore, this treatment does not protect the patient with nonmetastatic cancer of the prostate from developing metastasis at a future time. In spite of the apparent ineffectiveness of androgen control therapy on the bone metastasis, it cannot be denied that many of these patients derive temporary benefit, such as disappearance or improvement of pain, gain in weight and increase in well-being. Androgen control treatment, and particularly orchiectomy, should not be carried out indiscriminately in all cases of carcinoma of the prostate. Castration should be reserved for patients with metastatic disease, patients in whom metastasis is suspected or patients with rapid enlargement of the primary lesion.

Hemorrhagic Shock: Effect of Amino Acids, Amigen and Gelatin in Dogs.—A comparison of the values of saline solution, red blood cell saline suspension and heparinized plasma in the treatment of hemorrhagic shock in dogs produced by an easily standardized method has been recently reported from the laboratory of Nicholl and his collaborators, who report a continuation of the work with comparative tests of pure crystalline amino acids, an enzymatic hydrolysate of casein (amigen) and bone gelatin. They stress the following points: 1. Under the conditions of these experiments an amino acid (10 per cent) solution and a solution (10 per cent) of a hydrolysate of casein and pork pancreas (amigen) were found to be ineffective in overcoming shock produced by a severe acute hemorrhage in each of 7 dogs. 2. Under the same conditions suspensions of red cells in solutions of amino acids and amigen proved more effective than amino acid or amigen solutions without red cells and less effective than the gelatin used in treating this type of hemorrhagic shock. 3. Under similar conditions 3 per cent solutions of bovine bone gelatin which had previously been autoclaved twenty minutes and one hundred and eighty minutes proved 100 per cent effective in overcoming hemorrhagic shock in 15 dogs. 4. The apparent ability of this gelatin to maintain circulatory volume without untoward reaction supports its careful trial in the emergency treatment of hemorrhagic shock in human beings.

Tennessee State Medical Assn. Journal, Nashville

38:1-28 (Jan.) 1945

Gerontology, Geriatrics and Gerontotherapy. W. E. Howell.—p. 1.
Amebiasis. E. L. Turner.—p. 7.
Implications of Importation of Malaria by Personnel of Armed Forces. R. B. Watson.—p. 13.

38:29-59 (Feb.) 1945

How Should Cancer of the Prostate Be Treated? B. W. Wright.—p. 35.

Texas State Journal of Medicine, Fort Worth

40:459-508 (Jan.) 1945

*New Method of Treatment of Infiltrating Carcinoma of Urinary Bladder. T. B. Wayman and Ester C. Marting.—p. 463.
Diagnosis of Acute Appendicitis. H. C. Fisher.—p. 469.
Surgical Closure of Patent Ductus Arteriosus. J. W. Nixon.—p. 473.
Study of Rectal and Axillary Temperatures in Infants. J. P. Gibson. —p. 478.
Application of Chick Embryo to Virus and Rickettsial Disease Problems. M. Pollard.—p. 480.
Cause and Treatment of Rhinopharyngeal Hemorrhages. R. E. Windham.—p. 484.
Uveitis and Its Relation to Focal Infections and Allergy: Some Observations Concerning Diagnosis, Prognosis and Treatment of Several Clinical Types. W. D. Gill.—p. 488.

Treatment of Infiltrating Carcinoma of Urinary Bladder.—Wayman and Marting present a new method of interstitial irradiation for carcinoma of the bladder which they believe offers a technic by which sterilizing doses of radiation may be applied to bladder tumors without injury to the surrounding tissues. In employing this method it is important to determine whether the tumor mass is situated in the base of the bladder or at some other location so that the proper exposure of the bladder may be utilized. If the tumor is located on the trigone and can be palpated through the vagina or rectum the bladder is exposed by using the vaginal or the perineal approach. If the tumor is located in a position other than the trigone the suprapubic approach is employed. The authors describe and illustrate these different methods of approach. The total dose of radium applied by the authors with this interstitial method of treatment was 4,341 to 7,320 millicurie hours. They show that if the needles are placed approximately 1 cm. apart throughout the entire tumor-bearing area all of the malignant cells will receive the minimum lethal dose. The needles should be placed parallel to one another so that they do not crisscross and produce overconcentration of radiation at any single point. This method is applicable in inoperable as well as in operable bladder tumors.

Western J. Surg., Obst. & Gynecology, Portland, Ore.

53:1-34 (Jan.) 1945

Eosinophilic Granuloma of Skull. J. Raaf.—p. 1.
Varicose Veins of Female Pelvis. A. N. Webb.—p. 5.
Recent Advances in Medical Gynecology. R. N. Rutherford.—p. 11.
Phenylmercuric Acetate Jelly. L. H. Biskind.—p. 18.
Diabetes Mellitus and Pregnancy: Survey of 49 Deliveries. J. L. Gaspar.—p. 21.

53:35-64 (Feb.) 1945

Current Concepts of Vaginitis and Vulvar Irritations in Infants and Children. G. C. Schauffler and Caroline Schauffler.—p. 35.
Acute Hemorrhagic Pancreatitis: Case Report. L. J. Gariepy.—p. 45.
So-Called Endometrioma Interstitiale, with Report of 3 Possible Cases. D. W. DeCarle.—p. 48.
Use of Splanchnic Block for Operations in Upper Abdomen. H. McCorkle, H. Silvani and W. Brock.—p. 51.
Rupture of Uterus in Labor. D. G. Tollefson.—p. 54.

Wisconsin Medical Journal, Madison

43:1193-1300 (Dec.) 1944

Sulfonamide Anuria Treated by Unilateral Renal Decapsulation. J. P. Skibba.—p. 1215.
Anuria: Report of 4 Cases, 3 Treated by Kidney Decapsulation. C. R. Marquardt, H. E. Cook and A. J. Frederick.—p. 1218.
Will Returned-Soldier Malaria Menace Wisconsin? H. Beckman.—p. 1222.
Medical Care of Mentally Ill in County Asylums in Wisconsin. H. H. Christofferson.—p. 1229.
Postwar Planning for Medical Services. M. Fishbein.—p. 1243.

44:1-188 (Jan.) 1945

The G. I. Bill of Rights. J. W. Holloway Jr.—p. 116.
The Bureau of Information: Its Functions and Operation. H. C. Lueth. —p. 119.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Annals of Rheumatic Diseases, London

4:29-49 (Dec.) 1944

Sciatica: Anatomic and Mechanical Study of Lumbosacral Region. N. Capener.—p. 29.
*Experimental Transmission of Rheumatic Fever. W. S. C. Copeman. —p. 37.
Microdetermination of Gold in Biologic Fluids and Tissues. W. D. Block.—p. 39.
Determination of Blood Level of Vitamin C in Chronic Rheumatic Disease. E. A. M. Bradford.—p. 43.
Fibrositis and Reality. M. Kelly.—p. 46.

Experimental Transmission of Rheumatic Fever.—Copeman obtained adult volunteers for an experiment on transmission of rheumatic fever. From a patient who had a typical attack of rheumatic fever he obtained blood on the fourth day of his illness and transferred it to 5 volunteers. The blood of 2 who showed a rheumatic reaction was then taken and injected into a further group of volunteers, and so on. It was only in the fourth "generation" of volunteers that no further reaction of any sort was noted. The author thinks that it might be surmised from this experiment (1) that rheumatic fever can be transmitted in the blood of an active sufferer and (2) that the syndrome of rheumatic fever may be a synthesis of two elements: (*a*) a febrile nonspecific element and (*b*) a specific fibrotoxic (and cardiotoxic) element, since it seemed that there was some clinical evidence of these two elements developing independently in certain of the volunteers.

Australian J. Exper. Biol. and M. Science, Adelaide

22:223-310 (Dec.) 1944. **Partial Index**

*Antibacterial Substances Produced by Molds: 6. Production of Crystalline Penicidin. Nancy Atkinson, R. A. W. Sheppard, N. F. Stanley and P. Melvin.—p. 223.
Id.: 7. Activity of Further Group of Australian Strains of Penicillium and Aspergillus. Nancy Atkinson, R. A. W. Sheppard, N. F. Stanley and K. Mary Rainsford.—p. 227.
Detoxication of Diphtheria Toxin. Mary H. Petherick and E. Singer. —p. 285.
Kinetics of Fermentation of d-Fructofuranose by Yeast. A. Gottschalk. —p. 291.
Lack of Increase in Antibody After Second Injection of Influenza Virus in Man. W. I. B. Beveridge.—p. 301.
Suppression of Antigenicity of Influenza Virus by Admixture with Homologous Antiserum. W. I. B. Beveridge, Joyce D. Stone and Patricia E. Lind.—p. 307.

Crystalline Penicidin.—Atkinson and her collaborators state that, as a result of further work on production and purification, penicidin has now been prepared in crystalline form. A method resembling that described by Birkinstraw and his associates was adopted for the extraction of penicidin. The final yield of crystalline penicidin was disappointingly small. Penicidin was actively antiluminescent; it shared this characteristic with other antibacterial substances produced by molds, notably aspergillic acid. Jones et al. found the antiluminescence titration satisfactory for assaying solutions of aspergillic acid; the authors have found it useful in estimating the concentration of penicidin in crude and partially purified preparations. So far only biologic methods have been successful in detecting and estimating penicidin, and of the available methods the antiluminescence titration provides results in the shortest time.

British Journal of Experimental Pathology, London

25:193-256 (Dec.) 1944. **Partial Index**

Routine Examination of Urine for Mycobacterium Tuberculosis. H. J. Peppler and J. T. Hill.—p. 193.
Pharmacology of Patulin. W. A. Broom, E. Bulbring, C. J. Chapman, J. W. F. Hampton, A. M. Thomson, J. Ungar, R. Wien and G. Woolfe. —p. 195.
Blood Group A Antigen Prepared from an A Hapten of Human Origin. W. T. J. Morgan and W. M. Watkins.—p. 221.
Effect of Penicillin on Treponema Pallidum Infection in Rabbits. F. R. Selbie and R. D. Simon.—p. 229.
Thymol Turbidity Test as Indicator of Liver Dysfunction. N. F. Maclagan.—p. 234.
Oxygen-Stable Hemolysin of Group A Hemolytic Streptococci (Streptolysin S). D. Herbert and E. W. Todd.—p. 242.

British Journal of Radiology, London

18:33-64 (Feb.) 1945

Pulmonary Disease in Graphic Workers. L. Dunner.—p. 33.
Photographic Methods Applied to Dosimetric Problems. G. Spiegler. —p. 36.
Calculation of Dosage and Additional Distribution Rule for Cylindric "Volume" Implantations with Radium. W. J. Meredith and S. K. Stephenson.—p. 45.
Recent Scandinavian Literature on Radiotherapy. F. Ellis.—p. 48.

Pulmonary Disease in Graphite Workers.—The observations reported by Dunner were made during routine examinations of 5 men who had been working with graphite for many years. The graphite when removed from its containers gives rise to a dust which is inhaled for many hours daily. The men had handled graphite for from seventeen to thirty-four years. Physical examination by percussion and auscultation revealed slight changes, but the mild symptoms and few physical signs are in striking contrast to the x-ray appearances. The first patient, a man aged 56 who had worked with graphite for twenty years, had had cough and sputum for many years and recently pains in the chest. The x-rays revealed patchy infiltration throughout the right lung. Nodular opacities could be distinguished. The infiltration became more homogeneous at the base. There was slight patchy infiltration at the left base. The second patient had cough and sputum but felt well. Another patient was troubled with bronchitis, which caused him to be absent from work occasionally. The 2 other men had no complaints. The chest roentgenograms of all 5 showed opacities, reticulation, nodulation and other changes. The author concludes that graphite dust can produce pneumonoconiosis. The symptoms are mild even in advanced cases, and diagnosis must be based on x-ray examination.

British Medical Journal, London

1:35-70 (Jan. 13) 1945

Evolution of Modern Therapeutics. W. Langdon-Brown.—p. 35.
*Scabies Prophylaxis Using "Tetmosol" Soap. K. Mellanby.—p. 38.
Artificial Insemination. Mary Barton, K. Walker and B. P. Wiesner. —p. 40.
Methyl Bromide Poisoning: Effects on Nervous System. A. B. Carter. —p. 43.
Hypoproteinemia During Recovery from Severe Anemia. T. Davies. —p. 45.

1:71-106 (Jan. 20) 1945

Aerial Infection. M. Mitman.—p. 71.
Nature of Injectable Liver Extracts: Discussion on Standards of Potency and Purification. W. B. Emery and W. J. Hurran.—p. 75.
Prophylaxis of Rickets by Single Massive Doses of Vitamin D. D. Krestin.—p. 78.
Prophylaxis of Respiratory Tract Infections with Sulfanilamide Lozenges. A. F. Hayden.—p. 81.
Recovery from Diabetic Coma of Abrupt Onset with Extreme Hyperglycemia. C. Elkes.—p. 82.

Scabies Prophylaxis Using "Tetmosol" Soap.—A soap has been produced which contains 10 per cent of "tetmosol" (tetraethylthiuram monosulfide). The use of this soap has been shown to kill Sarcoptes and thus to cure scabies, though as a therapeutic agent at a treatment center it is less efficient than benzyl benzoate. It is, however, so simple to use that it seemed possible that its general issue to an infected population would prevent further transmission of the disease. Patients in a mental hospital used tetmosol soap for a period of eleven weeks. Scabies, which was very prevalent at the start of the experiment, was almost entirely eliminated. Most cases were cured, and the spread of the disease was prevented.

1:107-140 (Jan. 27) 1945

*Action of Penicillin on Bacteria. L. P. Garrod.—p. 107.
Penicillin in Gonorrhea and Syphilis, with Notes on 2 Cases of Dual Infection. F. L. Lydon and W. R. Scott.—p. 110.
*Temporary Character of "Fastness" of Staphylococci to Penicillin. E. W. Todd and G. S. Turner.—p. 111.
Weil's Disease in Normandy: Its Treatment with Penicillin. E. Bulmer. —p. 113.
Local Penicillin Therapy in Ophthalmia Neonatorum. A. Sorsby and Elizabeth Hoffa.—p. 114.
Preparation of Purified Penicillin. F. M. Berger.—p. 116.
Thyroid Hyperplasia After Prolonged Excessive Dosage with Thiouracil. J. B. Donald and D. M. Dunlop.—p. 117.

Action of Penicillin on Bacteria.—Garrod says that penicillin is fairly rapidly lethal to susceptible bacteria. All commercial penicillins tested were less active in high than in low concentrations. Impurities which presumably cause this and

other anomalies present a serious problem. Nothing is likely to be gained by using high concentrations, particularly for local treatment. A concentration of 1 unit per cubic centimeter is not only just as effective as one of 1,000 units but often more so. The only good reason for using strong solutions in local treatment is to ensure that loss by escape, dilution or absorption shall not permit the concentration to fall below the minimum level for full effect, which may be about 0.1 unit per cubic centimeter. The factors controlling this loss vary almost infinitely, from good retention in a closed space to the impossibility of retention and the dilution by copious exudate which characterizes some open wounds. The optimum strength of solution must therefore vary, but the standard probably need not exceed 250 units per cubic centimeter. These experiments also have some practical bearing in relation to Bigger's proposal that systemic penicillin treatment should be intermittent. His argument is that penicillin kills only dividing cells and that a small proportion of dormant nondividing cells, which he terms "persisters," are liable to survive; these must be permitted to grow by interrupting treatment if sterilization is to be complete. Studies of the effect of temperature and particularly of reproductive activity on susceptibility to penicillin demonstrate behavior which seems to differ in no qualitative sense from that of other disinfectants.

Temporary "Fastness" of Staphylococci to Penicillin.—Two strains of coagulase positive staphylococci were made penicillin "fast" by cultivation in increasing quantities of penicillin. They were then subcultured daily in broth without penicillin and, contrary to expectations, a rapid fall in resistance to penicillin was noted. It therefore appears that "fastness" of staphylococci to penicillin is not a permanent characteristic but that staphylococci which have become resistant to penicillin in vivo might similarly revert to the penicillin sensitive state on withdrawal of the drug. Indeed, it seems possible that the reversion might be more rapid in vivo than in vitro.

Lancet, London

1:71-102 (Jan. 20) 1945

Management of Hospitals in Peace and War. S. Hastings.—p. 71.
*Bacteriolytic Action of Penicillin. E. W. Todd.—p. 74.
*Pneumococcal Lobar Pneumonia Treated with Sulfamezathine: Further Study. W. A. Ramsay, P. Steiner, R. W. Luxton and G. S. Smith.—p. 78.
Spread of Infective Hepatitis. R. Kirk.—p. 80.
Significance of Mites and Their Eggs in Human Feces. P. Manson-Bahr and W. J. Muggleton.—p. 81.
New Technic of Spinal Anesthesia. A. R. Hunter.—p. 82.
Creams for Testing Sensitivity of Organisms to Bacteriostatics. H. B. May and D. Stern.—p. 83.
Metazoan Immunity. D. B. Blacklock.—p. 84.

Bacteriolytic Action of Penicillin.—Todd investigated a number of organisms for their susceptibility to bacteriolysis by penicillin. He found that all the penicillin sensitive organisms tested were susceptible to bacteriolysis by penicillin. Penicillin insensitive organisms, such as Escherichia coli and Pseudomonas aeruginosa, were not lysed by penicillin. The question arises whether the bacteriostatic action of penicillin is separate from the bacteriolytic action or whether they are different manifestations of the same process. There can be no doubt that penicillin is capable of killing micro-organisms without lysis, and it seems probable that multiplications, death and lysis may all occur independently at the same time in a culture containing penicillin. This was observed in a culture in which during the first two hours of incubation turbidity increased with a diminishing colony count, presumably owing to rapid multiplication accompanied by a still more rapid death rate but without correspondingly rapid lysis. After this initial period, progressive lysis and a steadily falling colony count proceeded to complete lysis and complete sterilization. When the potential rate of multiplication is increased by the addition of serum, bacteriolysis begins within an hour without preliminary increase of turbidity or other evidence of multiplication. It is, however, possible that in this case multiplication is not detectable because both the death rate and the rate of lysis exceed the rate of multiplication. It seems to be a general rule that the rate of bacteriolysis by penicillin depends on the actual or potential rate of multiplication of the organisms. Staphylococci which are not actively dividing survive in penicillin, while the actively multiplying organisms are killed. It may be that the real reason why penicillin is so effective is that young cultures in the stage of active multiplication are more susceptible to the bacteriolytic action of penicillin than older cultures. It is therefore fortunate that the organisms which are in such a state that they could readily invade the human body are in just the state in which they are most susceptible to the bacteriolytic action of penicillin.

Sulfamezathine in Pneumococcic Pneumonia.—Ramsay and his associates report that sulfamezathine has been used in the treatment of a further 287 cases of pneumococcic lobar pneumonia with a case fatality rate of 8.4 per cent. Of the 24 patients who died, 22 were over 50 years of age. It is confirmed that the drug is relatively nontoxic and that the number of complications is not high. An analysis of the deaths in this and in the previous series suggests the following points as an aid in reducing still further the mortality of lobar pneumonia: Steps must be taken to ensure an adequate drug concentration in the blood in the first twenty-four hours in severely toxic cases and in those coming for treatment after the seventh day of the disease. In older patients the heart condition should be assessed and adequate convalescence allowed. Abdominal symptoms should be regarded as a sign of toxemia and receive early treatment. An undetected empyema may be one of the reasons for the development of pneumococcic endocarditis.

1:103-134 (Jan. 27) 1945

Hemothorax: Notes and Observations. N. R. Barrett.—p. 103.
*Louse Borne Typhus Fever: Trial of Serum Treatment. R. S. Stevens.—p. 106.
Effect of Temperature on Isoagglutination in Blood Grouping. J. H. Nelson.—p. 109.
Radiotherapy in Osteoblastoma. G. Hilton.—p. 110.
Meningitis Due to Pseudomonas Pyocyanea: Penetrating Wounds of Head. E. H. Botterell and D. Magner.—p. 112.
Infection from Spinal Analgesia: Warning. F. T. Evans.—p. 115.
Venous Thrombosis Following Pentothal Anesthesia. D. Hewspear.—p. 116.

Louse Borne Typhus Fever.—Stevens says that, during the first six months of 1943, 21 cases of louse borne typhus fever were admitted to a military hospital in the Middle East. Seven of them were treated with hyperimmune rabbit serum prepared by the Lederle Laboratories of New York and supplied by the U. S. Army medical services. Six patients were given large doses of serum as soon as clinical diagnosis was established and all recovered. A seventh patient, given a smaller dose, died. No attempt is made to draw conclusions from so small a series. The serum apparently has a beneficial effect by modifying the severity of the course and reducing the toxemia. Emphasis is placed on giving the serum as early as possible and in adequate dosage.

Proceedings of Royal Society of Medicine, London

38:51-96 (Dec.) 1944. **Partial Index**

Medical Aspects of Coal Mining. S. W. Fisher.—p. 59.
Congenital Pseudarthrosis of Tibia Treated by Twin Grafts. S. A. S. Malkin.—p. 71.
*Excision of Proximal Row of Carpus. T. T. Stamm.—p. 74.
Certain Observations on Normandy Casualties. D. Trevor.—p. 76.
Some Methods of Nonskeletal Traction. M. C. Wilkinson.—p. 78.

Excision of Proximal Row of Carpus.—Stamm states that the object of treatment must be to restore a free range of movement, throughout which no structures are submitted to excessive stretching or impaction. The essential step in any arthroplasty is to provide a gap whose closure will relax the surrounding structures and so relieve the tissues from stress. The removal of one bone or part of one bone from the proximal row of the carpus does not affect this relaxation. Excision of the whole of the proximal row of the carpus offers a possible solution. It not only provides a good joint gap but also results in the substitution of a simple ball and socket joint between the os capitatum and the radius for the normal complicated link-joint mechanism. The operation requires care so as not to damage the radius or other carpal bones. The after-treatment is all important. The final result cannot be expected in less than four months. The average result is a wrist with 50 to 70 per cent of the normal range of movement, slight weakness of grip and occasionally some degree of pain on forced radial deviation of the wrist. Even if arthrodesis should ultimately prove necessary, it will have been greatly facilitated by the removal of the proximal row of the carpus.

Arch. Urug. de Med., Cir. y Especialid., Montevideo

25:1-466 (Oct.) 1944. **Partial Index**

Acute Suppurative Meningitis: Two Cases Cured by Penicillin. A. Schroeder and J. B. Gomensoro.—p. 361.
*Amphetamine Sulfate Therapy of Barbiturate Intoxication. F. Herrera Ramos.—p. 376.

Amphetamine Sulfate Therapy of Barbiturate Poisoning.—Herrera Ramos treated successfully 8 out of 9 cases of barbiturate poisoning with amphetamine. The drug was injected intravenously in a solution containing 0.5 mg. of amphetamine sulfate for each gram of the barbituric preparation ingested. This was followed thirty minutes later by an intramuscular injection of the same dose of amphetamine. Intramuscular injections of 1 mg. of amphetamine sulfate for each gram of the ingested barbiturate were repeated every forty-five minutes until the patient recovered from coma. Subcutaneous injection of a solution containing 0.2 mg. of amphetamine sulfate for each gram of the barbiturate ingested was kept up hourly for three hours and every three hours for six hours. Amphetamine sulfate was then given by mouth in doses of 2 mg. every eight hours for twenty-four or forty-eight hours. Determination of the barbiturate level in the blood served as an index to the course of the poisoning and the effect of treatment.

Medicina Española, Madrid

12:223-338 (Sept.) 1944. **Partial Index**

*Cystic Ganglioneuroma of Cerebral Lobe: Histopatologic and Neurosurgic Study. L. Barraquer, E. Tolosa and J. Sard.—p. 225.

Cystic Ganglioneuroma.—Barraquer and his collaborators report a case of cystic ganglioneuroma of the frontal lobe. The proper diagnosis was made from the results of a ventriculography. The operation consisted in frontal osteoplastic craneotomy, elimination of 50 cc. of the cystic fluid through central puncture of the frontal lobe, resection of an area of the cortex 5 cm. in diameter and surgical removal of the tumor. The latter weighed 16 Gm. The histologic diagnosis was ganglioneuroma. The normal cells about the tumor and the walls of the cyst showed that there was neither penetration nor infiltration of tumoral cells to the normal nervous tissues. The operation was successful. The good results have continued five months after postoperative recovery of the patient.

Medizinische Klinik, Berlin

39:541-570 (Aug. 6) 1943. **Partial Index**

Results of Investigations and Progress of Science of Healing of Diseases of Ear, Nose and Throat. E. Wirth.—p. 541.
Exhaustion. Ickert.—p. 545.
Drug Therapy in the Front Linè. K. Soehring.—p. 548.
*Leukemia and Diseases of Nervous System. R. Stodtmeister and H. Weicker.—p. 551.
Clinical Aspect and Therapy of Tuberculous Pulmonary Hemorrhage from the Point of View of the Practitioner. A. Sattler.—p. 554.
Case of Syphilis of Stomach: Gastroscopic and Anatomic Findings. K. A. Koelsch.—p. 556.
Case of Thallium Poisoning with Trophic Disturbances of Nails. G. Dell' Acqua.—p. 558.

Leukemia and Nervous Complications.—Stodtmeister and Weicker analyzed 300 cases of leukemia from the literature and found that the nervous system is much more frequently involved in a leukemic process than was generally assumed. Hemorrhages, infiltrations and degenerative processes are responsible for the leukemic changes in the nervous system. None of the varieties of leukemia display any predilection for certain areas, tracts or systems in the brain, the spinal cord or the peripheral nervous system. Cerebral hemorrhages can be demonstrated in the majority of the cases in the white substance. Hemorrhages were mainly associated with the periodic appearance of myeloblasts in the peripheral blood in chronic myelogenous leukemia and in the so-called classic myeloblastic leukemia. These processes, however, do not represent a genuine leukemic event but are rather to be considered manifestations of a more or less acute decompensation of the bone marrow function. Disturbances of thrombopoiesis play the main part in the etiology of hemorrhages. Variants of the so-called myeloblastic leukemia, characterized by the presence of tumor-like masses (chloroma), may be responsible for pressure symptoms in the brain or the spinal cord. This type of "myeloblastic syndrome" belongs to the group of true leukemias. Chronic leukemias, particularly those of lymphogenous type, have a tendency to form infiltrations, although hemorrhages may likewise be present. Herpes zoster was observed exclusively in chronic cases, predominantly in those of the lymphogenous type of leukemia. In the absence of signs due to hemorrhage, neurologic symptoms seem to depend on purely degenerative changes. Circulatory disturbances could not be demonstrated. No specific relationship could be established between funicular disease of the spinal cord and the leukemias.

Acta medica Scandinavica, Stockholm

Supplement **144**:1-107 (April) 1943

*An Investigation Into a Yeastlike Fungus Isolated from Patients Suffering from or Suspected of Pulmonary Tuberculosis. E. Hollström.—p. 5.

Fungi in Tuberculosis.—The material for Hollström's investigation consisted of five strains of fungus of yeast type, two of which were obtained from the sputum of patients with pulmonary tuberculosis while three strains were isolated from the gastric lavage of patients under observation for suspected tuberculosis. The fungus isolated from these 5 patients was of the yeast-oidium type and was able to produce acid fast rods. When the fungus had been cultivated over twelve months, single cell cultures were obtained by using Chambers' micromanipulator with inverted microscope. Irrespective of their varying capacity to produce acid fast rods, the strains showed varying but the same cultural, tinctorial and biochemical properties. On ordinary slanted agar the fungus grew in colonies which corresponded to the R and S forms of the bacteria, of which the latter was the one most commonly seen. Two types of growth could be distinguished in glycerin bouillon cultures. The staining of the fungus varied to a high degree, so that the acid fastness with the Hallberg stain and the general staining diminished with increasing age of the culture. The acid fast rods may originate from an amorphous mass in the fungus cells, which via non-acid fast granules and filaments differentiate into acid fast elements. Sometimes the outlines of the fungus cells seem to disappear first after this development; sometimes the fungus cells seem to disintegrate before its contents have been differentiated into acid fast elements. Intravenous inoculation into rabbits of agar and glycerin bouillon cultures of the fungus resulted in important variations of temperature, often considerable loss of weight, disturbances of equilibrium, pareses and ocular and other organic changes. The changes in the internal organs were more pronounced shortly after the inoculation than later, with the exception of the eyes. In one rabbit there occurred tuberculoid changes in the lungs, liver and spleen, and from the liver and spleen acid fast rods of Koch's bacillus type were obtained in pure culture. Acid fast rods were further encountered once in renal abscesses and twice in eye abscesses. In nine rabbits fungus cells could be demonstrated in eye abscesses and in three in the central nervous system. No other changes were obtained from inoculation into rabbits and guinea pigs of cultures containing both fungus cells and acid fast rods except such as could be seen after the inoculation with only fungus elements. Animal passage was carried out with material from the rabbit which presented tuberculoid changes in the lung, liver and spleen, and organic changes were produced which in the second passage resembled those of tuberculosis. In the foci there were numerous acid fast rods resembling tubercle bacilli, partly disseminated, partly in small accumulations, some of them phagocytosed and some in large clumps. Inoculation into guinea pigs never produced generalized tuberculous changes. Five of the animals inoculated with material containing acid fast rods were tested with tuberculin with negative results, which was also the case with rabbits inoculated with the fungus strains. From some of the animals cultures were made on Löwenstein's medium, when the acid fast rods grew in a two weeks period into yellowish colonies of twice the size of a pinhead which after recultivation and animal passage presented a changed appearance. The acid fast rods could not be cultivated at living room temperature or at a temperature of 113 F. or on any medium unsuitable for tubercle bacilli.

Book Notices

Treatment by Manipulation in General and Consulting Practice. By A. G. Timbrell Fisher, M.C., M.B., Ch.B., Orthopædic Surgeon to the St. John Clinic and Institute of Physical Medicine and to the Arthritic Unit, St. Stephen's Hospital, London. Fourth edition of "Manipulative Surgery." Cloth. Price, $4.75. Pp. 224, with 84 illustrations. New York: Paul B. Hoeber, Inc., 1944.

The art of manipulation in the treatment of orthopedic conditions has been deprecated by many of our best known physicians and surgeons of the past and present generations. The chiropractors and the osteopaths have built for themselves a certain amount of prestige and prominence in the mind of a considerable number of American people by applying the principle of manipulation in spite of the fact that in most instances these practitioners were not qualified to make a correct diagnosis of the condition which they were attempting to treat. The value of careful and skilled manipulation in the treatment of conditions in which there is restricted movement within joints of the extremities resulting from adhesions between muscles, tendons and bursae has been demonstrated by eminent physicians through the centuries. This book is timely and deserves careful consideration on the part of all doctors who are concerned with the treatment of chronic rheumatic diseases or of other conditions which affect the muscles, tendons or joints. The indications for treatment by this method and the technic of manipulation for various conditions has been well described. The book is well worth consideration.

The Amino Acid Composition of Proteins and Foods: Analytical Methods and Results. By Richard J. Block, Ph.D., Associate in the Department of Physiology and Biochemistry, New York Medical College, New York, and Diana Bolling, B.S. Cloth. Price, $6.50. Pp. 396, with 5 illustrations. Springfield, Illinois: Charles C Thomas, 1945.

It has been recognized for many years that the nutritive value of protein foods depends on their content of certain indispensable amino acids. Such amino acids cannot be synthesized in the animal body and must therefore be supplied in adequate quantities in the diet. For this reason, as the authors point out in the preface, "a reasonably accurate knowledge of the amino acid composition of a protein permits an approximation of its nutritive value and, more important, allows the choosing of different proteins so that they became mutually supplementary." In this book the authors describe in detail most of the important analytical methods which have been devised for the determination, with some degree of accuracy, of the amounts of the various amino acids commonly found in proteins. In addition they have prepared a large number of tables showing the amino acid composition of a great many nutritionally valuable food proteins of plant and animal origin. The result is a book which will be found invaluable not only by the biochemist interested in the quantitative determination of some particular amino acid but also by the clinician and the dietitian interested in formulating diets which include all of the essential amino acids in adequate amounts. It will also be found extremely useful in helping to select dietary proteins which are rich in some particular amino acid to be included in the diet for therapeutic purposes.

An Invitation to Portuguese. By Margarita Madrigal and Henriqueta Chamberlain. Cloth. Price, $1.75. Pp. 208, with illustrations. New York: Simon and Schuster, 1944.

As contacts with the medical profession of Brazil become more frequent, more physicians will be interested in developing at least a sufficient knowledge of Portuguese to enable them to get about successfully when visiting that country. This manual is designed particularly for those who want to learn such a minimum amount of Portuguese rapidly.

My Second Life. By Thomas Hall Shastid, A.M., M.D., LL.D. Cloth. Price, $10; Ragston permanent paper edition, $12. Pp. 1,174, with illustrations. Ann Arbor, Michigan: George Wahr, 1944.

In 4 pounds 12 ounces of war-scarce materials comprising 1,174 pages, this volume stands 3⅝ inches thick. It is the author's second autobiography. It is an almost incredible collection of reminiscences without apparent organization.

American Medical Practice in the Perspectives of a Century. By Bernhard J. Stern, Ph.D., Visiting Professor of Sociology, Yale University, New Haven. Cloth. Price, $1.50. Pp. 156. New York: Commonwealth Fund; London: Oxford University Press, 1945.

This is one of a series of monographs to be offered by the Committee on Medicine and the Changing Order of the New York Academy of Medicine. It contains much interesting information but at the same time offers statements which may be attacked vehemently by those who have been closer than the author to the prevention, diagnosis and treatment of illness. While the book seems to be a plea for "socialized medicine," it actually makes no such plea directly.

Here is a strange comparison from the chapter on "The Expanding Horizons of Medicine":

> A comparison of the records of 2 patients with heart disease, 1 admitted to the hospital about twenty-five years ago and another admitted to the same hospital in 1938, yields interesting results. The first patient was cared for by a visiting physician, an intern and one specialist, the pathologist, bacteriologist, and the completed record covered two and one-half pages. The second patient was observed and described by three visiting physicians, two residents, three interns, ten specialists and fourteen technicians, a total of thirty-two individuals, and though the record of the case was still incomplete, it already covered twenty-nine pages.

This example, which, according to the author, was taken from G. Canby Robinson's The Patient as a Person, is not typical of the changes in the practice of medicine. Any one familiar with hospitals and modern treatment of disease is aware that the average patient is not seen by a variety of experts. A patient will be visited by an intern and a resident physician, as this is part of their duties. The attending physician will have full charge of the average case and he will call in a consultant only when necessary. If laboratory work is needed it will be provided. Yet the author claims, on page 53, "Considered from the viewpoint of the patient, specialization has complicated medical care in manifold ways and increased costs tremendously."

On page 54 the author claims that "there is little doubt but that the specialist tends to confine his observation of the causes of illness to the narrow field of vision with which he is most familiar. His special training and experience bring certain symptoms into focus, while his lack of experience in other fields dims his appreciation of the meaning of equally important symptoms. He fails as a rule to consider the patient as a whole, either physiologically or psychologically. Moreover, as patients, for the most part, come to the specialist only after their diseases are well advanced, the specialist's approach tends to be almost exclusively curative and only incidentally preventive." Then, he states, "it is one of the disparities of modern medicine that, while developments in the field of the deficiency diseases, endocrinology, psychiatry and psychosomatic medicine have led to the consideration of the patient in the context of his life history, the trend of diagnostic specialties is to ignore as irrelevant anything but the particular matter under scrutiny."

Apparently Stern believes that physicians do not yet receive adequate education, as he writes "The education of the physician not merely as a technician, but as a cultured person equipped with insights into human relationships and sensitized by an appreciation of the social sciences and the liberal arts, will do much to humanize the patient-doctor relationship, whatever other factors may tend to formalize such a relationship."

Somehow the author has the idea that practice in an office rather than in one's home is not conducive to establishing good patient-doctor relations: "The doctor formerly met his patients in a room set aside in his home, and the neighbors, when ill, came to see him and were received somewhat in the manner of guests. When his office is removed from the neighborhood to the center of town the contact is more impersonal and it is further formalized when receptionists and nurses take records. The further shift of diagnosis and treatment from the home to the hospital also reduces the physician's opportunity to acquire first-hand knowledge of the family setting and economic background of his patients."

Increasing interest is being shown in the family background of his patients by most physicians, general practitioners or specialists because they realize that there may be hidden in this background factors which may influence the mental and physical condition of the patient. Thus one cannot agree entirely with the statement "It is because pediatricians have intimate contacts with families in their homes that they have more affectionate relations with their patients than do other specialists whose

home visits are relatively infrequent." Apparently one of the most important human driving forces has been overlooked, namely the love that parents have for their children and the personal sacrifices that they will make to insure the welfare of a child. While they may not be particularly concerned about their own health or be especially interested in having their personal problems adjusted, they usually will abide unquestionably by suggestions from a physician when it has to do with their children.

There are other passages needing comment but there is not sufficient space. Unfortunately so much time was apparently devoted obtaining statistics concerning medical practice that the interpretations seem to be unsupported by known facts. Figures alone will not tell the whole story. Statistics must be properly evaluated; adequate evaluation can be made only by one familiar with the practical aspects of the problem.

A Method of Anatomy: Descriptive and Deductive. By J. C. Boileau Grant, M.C., M.B., Ch.B., Professor of Anatomy in the University of Toronto. Third edition. Fabrikoid. Price, $6. Pp. 822, with 729 illustrations. Baltimore: Williams and Wilkins Company, 1944.

In this edition fifty-five illustrations have been added to the original list; about seventy have been redrawn and relabeled. The initial section deals in general fashion with the several bodily systems. The osseous structure is considered microscopically; vascular foramens, elevations, facets, foveas and other gross features are discussed. Muscles are described on the basis of fascicular architecture; the physiologic mechanism of contractions is described in simple terms. The vascular system is considered from the standpoints of blood volume, character of arteriovenous anastomoses and nature of sinusoids, arteries and cavernous tissues. Many helpful facts are recorded regarding vascular patterns in such special areas as the nail bed, lip, cerebrum, spleen and erectile bodies; topographically different parts are thus brought together on the basis of peculiarity in blood supply. By this means the student is introduced to a rationalizing scheme of study. The nervous, digestive, respiratory, urinary and reproductive systems are similarly treated in this preliminary section. The regional accounts follow, a section being devoted to each of the major subdivisions of the body. A closing section covers the autonomic nervous system, body types and the separate elements of the skeleton. In all of these sections anatomic detail is handled ingeniously through the employment of simple mechanical principles; familiar physical notions are abundantly cited in order to render structural facts mentally manageable. For example, the inguinal canal is likened to a channel whose roof consists of three arcades contributed by a trilaminar wall; the liver is described as resembling an oblong block; the space of the femoral triangle, with its continuation as adductor canal, is likened to a funnel with a long spout. The section on thoracic anatomy, in addition to dealing with the regular segregated items, discusses such varied general topics as posture, alteration in form of the bronchial tree, development of the heart and great arteries. The section on the anatomy of the head and neck is, like the preceding sections, replete with diagrammatic figures.

The Method of Anatomy resembles a manual more closely than it does any other type of treatise, but it differs from the standard manual in presenting concepts superabundantly. It is not a textbook of the regular systematic order, since it is arranged chiefly on a regional basis. It is not a substitute for an atlas, since the drawings are diagrammatic. The book is unique in its attempt to teach anatomy in such a way that underlying principles, rather than mere facts, are made its chief content. Only a gifted teacher could formulate as many valuable notions as Professor Grant has included in his volume. His experience has allowed him to furnish some of the cleverest bits of description yet encountered in anatomic writings.

While Professor Grant's provocative volume could not replace the regular books in a student's anatomic library, it could most profitably be added to such a library. For the advanced student its content is inspiring; the surgical anatomist will find it useful as a source book for lecture material; and the novitiate in gross anatomy who places partial dependence on its ingenious text and pictures will be carried glowingly through those beginning years which, customarily, are far too didactic.

Health Practice Indices 1943: A Collection of Charts Showing the Range of Accomplishments in Various Fields of Community Health Service. Compiled from the Evaluation Schedules Submitted for the Year 1943. Prepared by the Subcommittee on Manual of Practice and Appraisal of Local Health Work for the Committee on Administrative Practice of the American Public Health Association. Paper. Pp. 116, with illustrations. New York, [n. d.].

This is a useful publication for the health officer who is serious about measuring the work of his health department or of the total health effort in his community against standardized practices in the field. The American Public Health Association has based most of its appraisal work comparisons with what is actually being done in various phases of public health work. Thus it becomes possible to compare the work in a given city not with a theoretical ideal but with the best work, or the worst, or the mediocre actually being accomplished. In the course of some twenty years since the first efforts at objective appraisal were made, a large volume of information has been built. Against this the health officer in any community can measure the health work done in that jurisdiction. So also can any interested group of citizens, professional or lay.

This collection of charts deals with health department personnel, general hospital beds, communicable disease control, tuberculosis, syphilis, gonorrhea, maternal health, infant health, preschool health, school health, accidental death, sanitation, public health expenditures and a list of health departments reporting and a table of summaries which gives the range of performances, the medians and other pertinent factors involved in interpreting the several tables. A typical section is that on communicable diseases, which contains nine charts preceded by a general summary in which each chart is briefly explained in a paragraph. The first chart deals with cases of smallpox reported over a five year period, the second chart with whooping cough, the third with diphtheria cases per hundred thousand of population in a five year period. The next chart deals with diphtheria deaths and the next two deal with typhoid cases and deaths respectively. The seventh chart gives a record of the percentage of cases of typhoid and paratyphoid investigated in the five year period, and the eighth the percentage of sources found. Chart 9 records cases of malaria reported per hundred thousand of population in a five year period.

Only a few charts indicate universally satisfactory accomplishment. Under sanitation, for example, the chart showing the rural school population percentage served with approved water supplies shows less than half of the upper quartile at 100, the rest of the reports in this quartile ranging to just above 90. As these graphs are constructed, satisfactory accomplishment would indicate the extension of the horizontal bars from the left as close to the right as possible. In other words, a practically solid chart of bars approaching 100 per cent would indicate a high level of accomplishment. Actually, most of the charts have large white spaces indicating by that just so much failure of public health practice to live up to the best standards of actual performance reported entirely aside from any comparison which might be made between the best standards attained and theoretically acceptable standards of performance. These charts indicate that there is so much to be done to bring accepted standard public health practices to an acceptable state of performance that there is little or no justification for attempting to load onto health departments the burden of administering medical care, as contemplated by the recent declaration by the American Public Health Association.

Lectures on Diseases of Children. By Sir Robert Hutchison, Bart., M.D., LL.D., F.R.C.P., Consulting Physician to the London Hospital and to the Hospital for Sick Children, Great Ormond Street, and Alan Moncrieff, M.D., F.R.C.P., Physician to the Children's Department, Middlesex Hospital, London. Ninth edition. Cloth. Price, $6.75. Pp. 478, with 108 illustrations. Baltimore: William Wood & Company, 1944.

The fact that this little volume has reached the ninth edition is convincing evidence of its popularity. The authors of these Lectures on Diseases of Children make no effort to cover the field of pediatrics, nor do they undertake a comprehensive coverage of the subjects which they discuss. The material is distinctly clinical and thoroughly practical. The lectures offer easy and instructive reading for the medical student, the general practitioner and the pediatrician.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

IMMUNIZATION WITH MULTIPLE ANTIGENS

To the Editor:—**The multiplicity of immunizations currently used by the U. S. Army has led to the question of the possibility of using mixtures of vaccines, particularly those of typhoid-paratyphoid, cholera and typhus. We have used such mixtures on several thousand men with no untoward results. The benefits included an increase in the accuracy of dosage and in economy of time, equipment and personnel. There were no known disadvantages. The consensus among both medical officers and those receiving the immunizations was that there were many advantages, not the least of which (to the patient) were the fewer skin punctures required, with corresponding decrease in the possibility of injection: The mixture used was:**

Vaccine	Manufacturer	Volume
Cholera, (8 billion killed vibrios per cc.)	Eli Lilly & Co.	1 cc.
Typhus (from yolk sacs of chick embryos)	E. R. Squibb & Sons	1 cc.
Triple typhoid	Army Medical School	0.5 cc.

Is there any evidence that such mixtures are not as effective if given in one mixed injection as if they are injected simultaneously at different sites? Are there any other possible disadvantages?

Major, M. C., A. U. S.

[This inquiry was referred to two authorities, whose respective replies follow.—EDITOR.]

ANSWER.—Combinations of several antigens have long been employed in immunization of man, some of them in the first world war. There is no important evidence to indicate that the vaccines are less effective given in one mixed injection than when the components are injected simultaneously at different sites. In the United States at present a combination of triple typhoid vaccine with diphtheria toxoid and tetanus toxoid has been proposed as well as a combination of pertussis vaccine with the two toxoids. The full activity of the several antigens is probably preserved in these combinations. The combination mentioned (cholera, typhus and triple typhoid) does not appear to have been the subject of published reports but might be expected to yield whatever results could be reasonably anticipated from the administration of the several vaccines separately.

ANSWER.—The use of multiple antigens has become a well established practice. Blood titrations on persons receiving combined diphtheria and tetanus toxoids show antitoxin levels of the same value as when these antigens are used separately. The addition of pertussis vaccine to diphtheria toxoid does not cause greater reaction or less evidence of immunity than when used separately. The Canadian army uses triple typhoid vaccine combined with tetanus toxoid. The resulting typhoid antibody level is at least equal to that of vaccine alone, whereas the tetanus antitoxin level is definitely higher. The French in Africa have combined smallpox and yellow fever vaccine into a single inoculation by scarification. They report no lessening of the immunity level for each. The reaction to be expected from combined antigens is approximately the sum of the individual reactions, which in the combination mentioned in this query would be that of triple typhoid vaccine since the other two rarely produce constitutional reactions. There are three problems to be solved in selecting the antigens to be combined: 1. Are the individual antigens compatible? Yellow fever vaccine, being a live virus and delicate, could not be mixed with any of the killed antigens. 2. What combination of antigens is needed for the persons to be immunized? A combination such as typhus vaccine and diphtheria toxoid would never be required, whereas triple typhoid vaccine and tetanus toxoid is a good one for military purposes and would not be objectionable in civilian life. 3. Occupation, age, social status and geographic location are factors which will influence the combinations that will be useful. Likewise the rate of immunity development, the age when immunity is particularly needed and the duration of immunity are factors of importance.

IONIZATION THERAPY IN OPHTHALMOLOGY

To the Editor:—**Will you please let me know the status of ionization therapy in diseases of the eye?**

M.D., Michigan.

ANSWER.—The simplest answer to this question is that ionization in disease of the eye is still in the experimental stage. There have been few reports of the clinical use of drugs by ionization in the literature in recent years. Von Sallman recently reported the iontophoretic introduction of atropine and scopolamine into the rabbit's eye. He used a Birkhauser electrode, which fits on the cornea like a contact lens. Using a 45 volt dry cell battery delivering 2 milliamperes for two minutes, he found that six to nine times as much atropine was found in the aqueous with this procedure as with an ordinary corneal bath used for the same length of time. Also he determined that with a transscleral electrode the delivery of atropine into the aqueous was not nearly as good. Since the outbreak of war a clinical report by Fleming has described the electrical device and gives a few case reports. He recommends iontophoresis in lid conditions, especially to break up adhesions in the iris. An excellent review of the entire subject appeared in *Ophthalmologica* in 1939. The author, Karbowski, lists the anions and cations which may be used and indicates in what disease conditions of the eyes each is of value. In the American literature Erlanger, who did most of his work in Germany, attempted to stimulate interest. The obvious conclusion would seem to be that electrical therapy is seldom needed in the treatment of the majority of eye diseases.

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OBSCURE FEBRILE ILLNESS

To the Editor:—**A man aged 34, weighing 138 pounds (63 Kg.), 5 feet 8 inches (173 cm.) tall, has been in the Army since July 1942 on full field duty. The early history is essentially normal; he had the usual childhood diseases. In 1942 he had an attack of streptococcic sore throat from which an uneventful recovery was made. He was sent to the China-Burma-India theater of operations doing full field duty from August 1943 until October 1944, spending most of this time in China and Burma. In 1943 he was hospitalized for bacillary dysentery and later sent back to duty as cured. In 1944 a laboratory diagnosis of relapsing fever was made and the usual arsenical treatment was given. About this time a tumor, diagnosed as a synovioma of the usual grade of malignancy, was removed from his right foot and he was returned to duty. A few months later he was sent to a hospital, where a diagnosis of malaria (Plasmodium vivax) was made and a course of treatment given. Symptoms of headache, joint aches and pains, 45 pounds (20 Kg.) loss of weight, weakness, nervousness, anxiety, anorexia, insomnia, generalized abdominal soreness and vague chest pains persisted and he was sent to another hospital with a diagnosis of possible undulant fever because of a persistent low grade undulating type of fever (99 to 101 F.). Agglutination tests at this time showed a positive reaction for paratyphoid B. Various sulfonamide compounds were administered, but symptoms persisted. Examination of the stools gave a negative reaction for typhoid and amebic dysentery. He was finally sent to a general hospital with a diagnosis of paratyphoid B and traumatic arthritis of the right foot due to repeated trauma. He was later sent to a general hospital in the United States with a diagnosis of febricula and a mild anxiety state. Fever and other symptoms have persisted for almost seven months. Agglutination and skin tests have given normal reactions. Blood cholesterol and sedimentation rates have been up and down and are now within normal limits. The heart, lungs, kidneys, prostate, eyes, ears, nose and throat have been cleared and no other foci of infection have been found; however, the patient's general condition remains unchanged. Would one be justified in considering the possibility of there still being present an undiagnosed undulant fever? What impressions, suggestions and comments can be made on the basis of this history?**

Captain, M. C., A. U. S.

ANSWER.—None of the various diagnoses with the possible exception of undulant fever could account for the persisting symptoms. The tentative diagnosis of chronic brucellosis is still justified despite the negative intradermal tests and the absence of specific serum agglutinins. The history suggests a recrudescence of brucellosis which was probably acquired many years ago, possibly in childhood, and which may have been either frank and undiagnosed or wholly subclinical at that time. A more detailed history of infantile and childhood behavior and complaints, places of residence, sources of dairy products, with similar information about parents and siblings might provide supportive evidence. The unlikely, but possible, event of infection with Leptospira canicola could probably be excluded by an agglutination test with the patient's serum against this strain of Leptospira. Opsonocytophagic tests, and repetition of agglutination tests against Brucella, ultimately followed by repetition of intradermal tests with brucellergen, are indicated. If all tests remain persistently negative it would be justifiable to employ the therapeutic test with Brucella vaccine, administering small amounts of highly diluted vaccine over a period of several months.

TOXICITY OF HIGH OCTANE GASOLINE

To the Editor:—I should like information on the toxicity of inhaling fumes from high octane gasoline as used in airplanes. Is there danger of lead poisoning? Are there any toxic effects of direct contact with this type of gasoline?

Captain, M. C., A. U. S.

ANSWER.—The dangers of respiratory exposure to the hydrocarbons and their derivatives found in high octane aviation gasoline depend on the concentration of these vapors and the duration of the exposure. Generally speaking, prolonged inhalation of the vapors of ordinary gasoline is harmless, provided the concentration in air does not exceed 1,000 parts per million. Perhaps some decrease in the accuracy of cerebration and of fine muscular coordination may result from such exposure, but these effects are generally slight and disappear promptly after discontinuance of the exposure. High octane gasolines usually contain hydrocarbons not found in ordinary gasoline, and some of these are much more toxic than those that characterize ordinary gasoline. Accordingly the concentration of vapors of high octane gasoline should not exceed 500 parts per million for comparatively short periods of exposure. It is probable that this concentration is too high for regularly repeated prolonged exposures (hours), and it is certain that concentrations of this order of magnitude should not be permitted to occur for more than fleeting periods within aircraft because of the effect on the efficiency of operating crews The acute effects of exposure to high concentrations of all gasoline vapors are much the same. Intoxications and varying degrees of narcosis occur promptly. Recovery following removal from exposure or following resuscitation is usually complete but not always prompt. There is little risk of serious exposure except under conditions of excessive spillage or evaporation within enclosed or poorly ventilated spaces.

Significant lead absorption from inhalation of the vapors of leaded gasoline occurs only from prolonged and frequently repeated exposure under conditions of excessive spillage and evaporation of gasoline within poorly ventilated spaces. The avoidance of spillage, leakage and especially a fine spray of gasoline, and the control of the hazards of fire and explosion in a manner consistent with the accepted practices employed in the commercial distribution and handling of gasoline will suffice to prevent any significant hazard of lead absorption.

There is no danger of lead poisoning as the result of cutaneous contact with this type of gasoline. The local effects of skin contact with this or any other gasoline, under suitable circumstances, are burning and blistering of the skin, defatting of the skin followed by drying and fissuring and perhaps secondary infection or parasitic infestation, and occasionally, following frequently recurring contact, a dermatitis of varying severity. These effects are produced by the hydrocarbons.

VITAMIN P

To the Editor:—A woman aged 40 says that she needs vitamin P (hesperidin). What are the symptoms of lack of this particular vitamin? Where may vitamin P be obtained?

Thomas van Urk, M.D., Kalamazoo, Mich.

ANSWER.—The occurrence of a disease entity resulting from lack of vitamin P (hesperidin) is undecided. There is clinical evidence that administration of vitamin P preparations favorably affects the lowered capillary resistance or spontaneous petechial hemorrhage associated with multiple vitamin deficiencies and found in certain diseases. Large doses of vitamin C promptly alleviate the gross hemorrhage manifestations of scurvy, but neither vitamin C nor vitamins A, B_1 or D appear to raise the lowered capillary resistance which can be corrected by vitamin P. On the other hand this vitamin cannot substitute for vitamin C. A vitamin P deficiency showing spontaneous petechial hemorrhage has been postulated as differing from the spontaneous gross hemorrhage of scurvy.

There have been a number of reports on the use of vitamin P in hemorrhagic purpuras associated with blood dyscrasias or toxic agents in which symptomatic improvement has been obtained. These relate to the purpura found in allergy and in infection and that resulting from antisyphilitic therapy as well as in situations characterized by vascular rupture in mucous membranes of the mouth, the gastrointestinal tract and the renal tract. Improvement in psoriasis has been reported from the use of vitamin P.

This vitamin is found in significant concentration in orange or, better, in lemon peel. The vitamin P content is approximately 1.75 mg. per gram of whole lemon. It is readily extracted by boiling the sliced whole fruit in water for ten minutes. The solution should then be strained and sweetened to taste. An empirical dosage of 20 mg. of vitamin P twice daily has been suggested, since the therapeutic requirement is not known. The purified vitamin is not available commercially at the present time.

ICHTHYOSIS

To the Editor:—A boy aged 3 years has ichthyosis, chiefly on the arms and legs, with a little on the back along the spinal column. I have been giving him 100,000 units of vitamin A daily, and improvement has been great; aside from the liberal use of lanolin on the affected areas, no other therapy has been given. 1. Is this amount of vitamin A likely to produce any unfavorable symptoms if continued over an indefinite period? 2. I have been advised to give the child ½ grain (32 mg.) of thyroid daily; is this dose harmful to a child 3 years of age? The ichthyosis has improved considerably without this therapy already. 3. Is the use of soap and water to be avoided? I have encountered contradictory advice in this regard.

M.D., Texas.

ANSWER.—1. Mild ichthyosis is often alleviated considerably by the administration of vitamin A in fairly large doses. Many patients do well in the summer anyway, so that it seems advisable to use the vitamin A only in the cold weather. No unfavorable symptoms have been reported from the administration of vitamin A, but intermittent use is advised on general principles.

2. In a case like that mentioned thyroid would not seem necessary, although it is occasionally of help.

3. In general, the less soap and water the better in mild ichthyosis; many patients need some oil or grease, especially in cold weather, to make them more comfortable.

MYELOCYTES AND NORMOBLASTS IN SPINAL FLUID

To the Editor:—What condition will produce myelocytes and normoblasts in the spinal fluid, the peripheral blood being negative for these forms? This is a case of apparent infectious meningitis, but no organisms have been isolated. The humerus shows several punched out areas. There are no other abnormalities.

M.D., South Carolina.

ANSWER.—There is apparently no recognized condition in which myelocytes and normoblasts are found in the spinal fluid. It is theoretically possible that, with a destructive lesion of the skull or vertebrae, bone marrow cells might migrate directly into the spinal fluid. Also a focus of extramedullary hemopoiesis could be associated with this phenomenon.

Myelocytes have been found in the spinal fluid of patients with chronic myelocytic leukemia. However, in this condition they are present also in the peripheral blood.

TREATMENT OF TYPHOID CARRIERS

To the Editor:—May I amplify the reply to the query regarding treatment of typhoid carriers as published in The Journal, Feb. 17, 1945, page 428 from two sources of information? First, the *Annals of Surgery* (105: 791 [May] 1937) contains an article entitled Surgical Treatment of Chronic Biliary Typhoid Carriers, by Dr. F. A. Coller, University Hospital, Ann Arbor, Mich., and Dr. F. C. Forsbeck, Michigan State Department of Health. They report the removal of the gallbladder from 18 typhoid carriers. Sixteen were cured, as evidenced when specimens of feces at monthly intervals for twelve months showed no typhoid organisms. Second, a report to the Detroit Department of Health was made in 1936, which reads in part as follows: "The typhoid carrier is a person who harbors, for an indefinite period, typhoid organisms. When the opportunity arises, typhoid fever may develop among contact persons. Sometimes the carrier has suffered from the disease, and at other times he does not recall having had typhoid fever. The site of infection is usually the gallbladder or the urinary bladder. It is sometimes found in discharging sinuses, and at other times the primary focus is in the intestinal tract—perhaps the appendix. The typhoid organism is often found in the appendix when it is present in the gallbladder. In the literature there are many series of typhoid carriers reported in which the gallbladder has been removed with the result that 70 per cent or more recovered from the typhoid carrier state. Sinuses which contain typhoid organisms, when treated surgically and closed, are cured at once. Urinary typhoid carriers are often treated successfully with urinary antiseptics. Gallbladder surgery on children and those over 50 years of age is often not desirable. Provision for the education of these children and provision of means for earning a livelihood for older carriers is often a difficult problem. Several states have supplied funds which will provide for the medical care and for the support of carriers who are deprived of their livelihood because of their carrier state." An interesting instance of a child typhoid carrier being cured by cholecystectomy is hereby reported: The child was born in 1929 and had typhoid in 1935. Numerous cultures from her feces up to 1940 contained typhoid organisms. Apparently her uncle developed typhoid from her and died. A neighbor's child, a playmate, developed typhoid. The child carrier was deprived of schooling. She was called to the attention of Dr. Grover C. Penberthy, who placed her in the Children's Hospital and removed her gallbladder. After three weeks repeated specimens of feces were examined and no typhoid organisms were found. She returned to school within a year. The observation has been made that sometimes the surgeon is interested only in the removal of the gallbladder and cuts the cystic duct some distance from the common duct, thus making a pocket of the cystic duct in which typhoid organisms can multiply. Such an operation might not cure the typhoid carrier. It therefore seems important when removing the gallbladder from typhoid carriers to cut the cystic duct near the common duct, so that a pocket at the side of the common duct will not be formed.

F. M. Meader, M.D., Kalamazoo, Mich.